

APPENDIX C

Public Information Centre No 1 and No. 2 Documents



Public Information Centre

Pelham New Elevated Tank and Enhanced Conceptual Design Class Environmental Assessment

November 6, 2019

Open House from 6 p.m. to 8 p.m.

Pelham Fire Hall Station No. 1, 177 RR 20, Fonthill

Welcome & Please Sign In

Information presented at this Public Information Centre (PIC) includes:

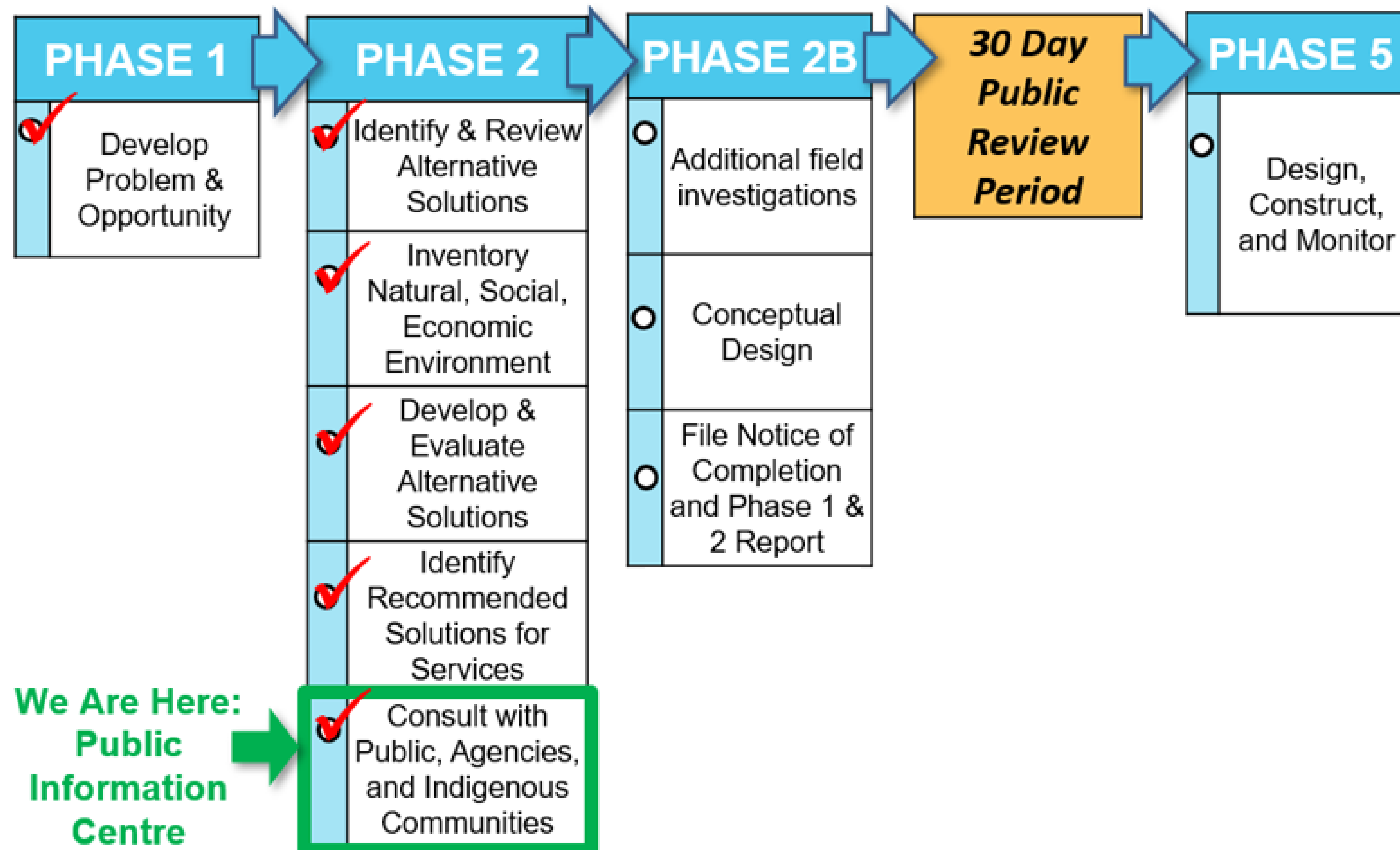
- What we plan to achieve
- Study findings to date
- Evaluation of the alternative sites
- Next steps

Please review the materials and submit your comments on the sheets provided

Municipal Class EA Process

Niagara Region is undertaking a Schedule B Municipal Class EA study for the Pelham Water System to plan for future water storage, pressure needs and make improvements to the water system, as required.

Schedule B Municipal Class EA Process



Problem & Opportunity (P&O) Statement

To accommodate growth to 2041, the Niagara Region Water and Wastewater Master Servicing Plan (MSP) identified improvements for the Pelham Water System including:

- Construction of a New Elevated Water Storage Tank (ET) and associated system upgrades to:
 - Provide opportunities for system optimization
 - Improve the storage and pressure in the Pelham Water System

This Class EA will:

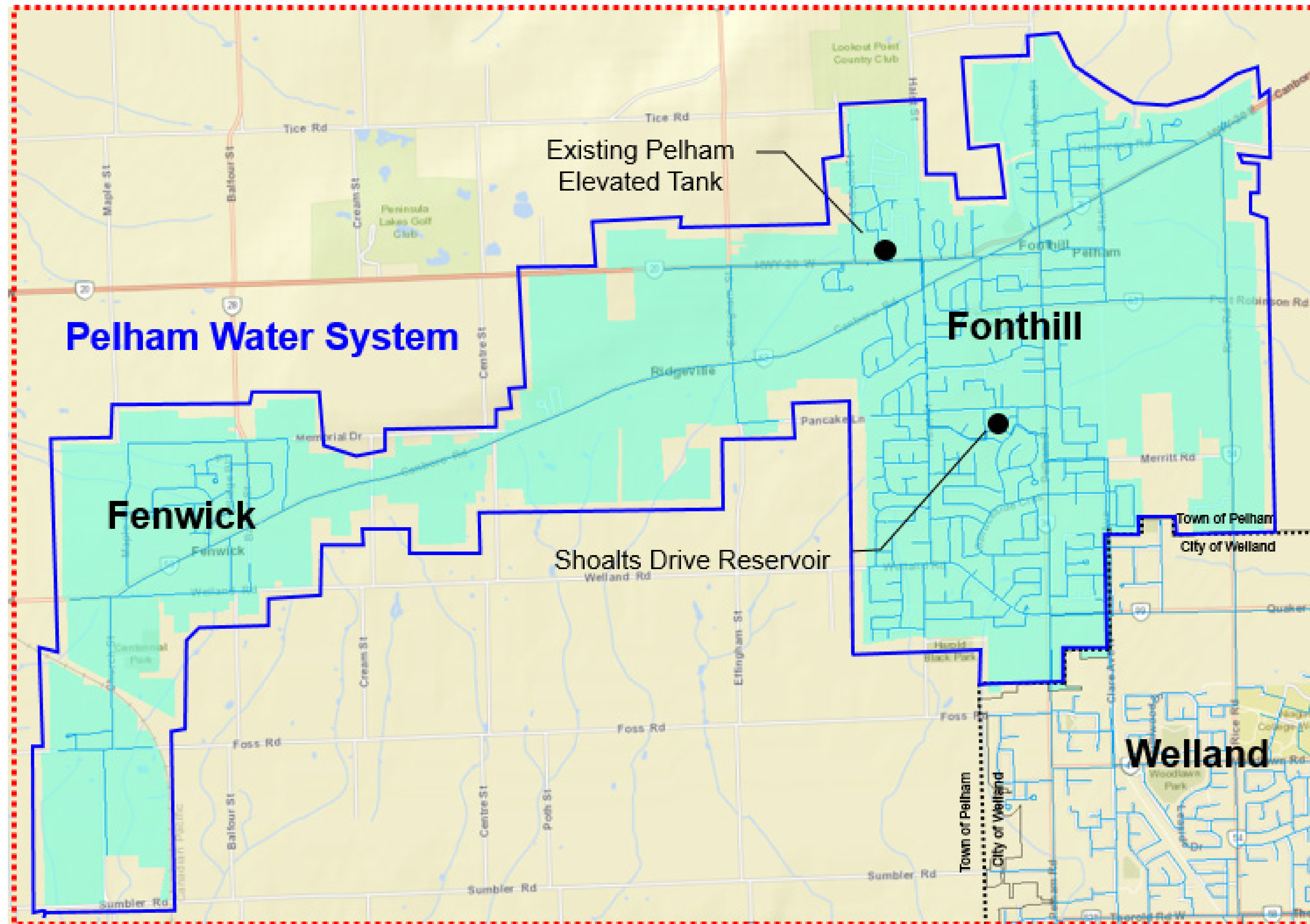
- Identify and evaluate various potential sites for the new elevated tank
- Identify necessary improvements to the existing water system
- Select a preferred site for the new ET after consideration of various factors, including social, economical, technical, archaeological, and environmental

Study Area

Areas currently serviced by the Pelham Water System (Fonthill & Fenwick).

How the Pelham Water System Works:

The Welland Water Treatment Plant supplies water through the Shoalts Drive Reservoir and the existing Pelham Elevated Tank.



Study Area

Population, Water Demand and Water Storage

The population growth and water demands estimated for 2041 requires the water storage volume to increase.

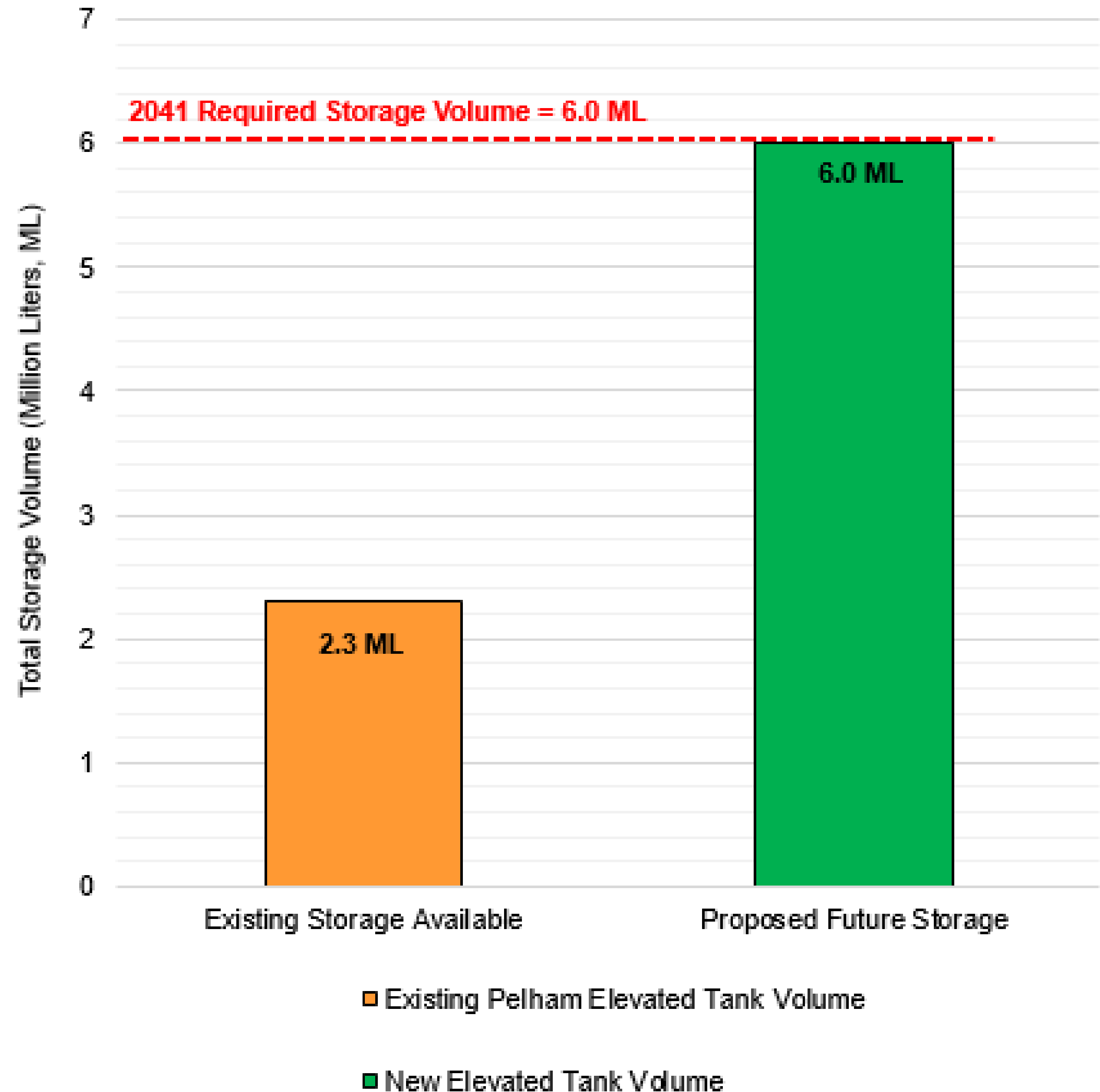
Existing Pelham Water System:

- Storage volume is insufficient for 2041
- Shoalts Drive Reservoir is used to transfer water to Pelham and back to Welland
- Existing Pelham Elevated Tank (ET) cannot be expanded
- There is a booster station to reach desired pressures at northern parts of Fonthill due to higher elevations

Proposed Pelham Water System Improvements:

- A new 6.0 ML ET at a higher elevation to address storage volume and to meet pressure requirements
- Existing ET could then be demolished, and Existing Shoalts Drive Reservoir is to remain in operation

Comparison of Available and Required Water Storage Volumes

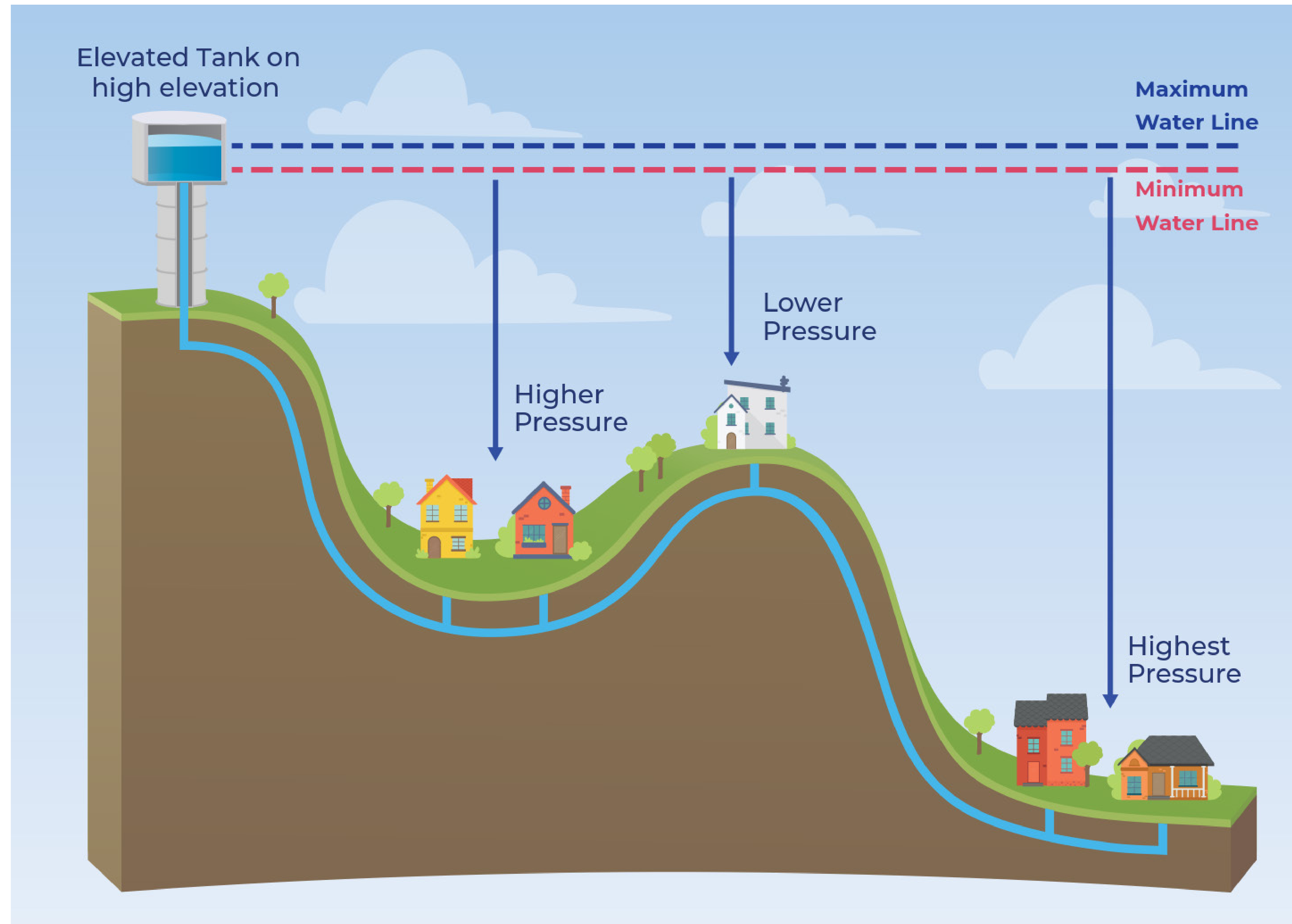


How the Water System Works

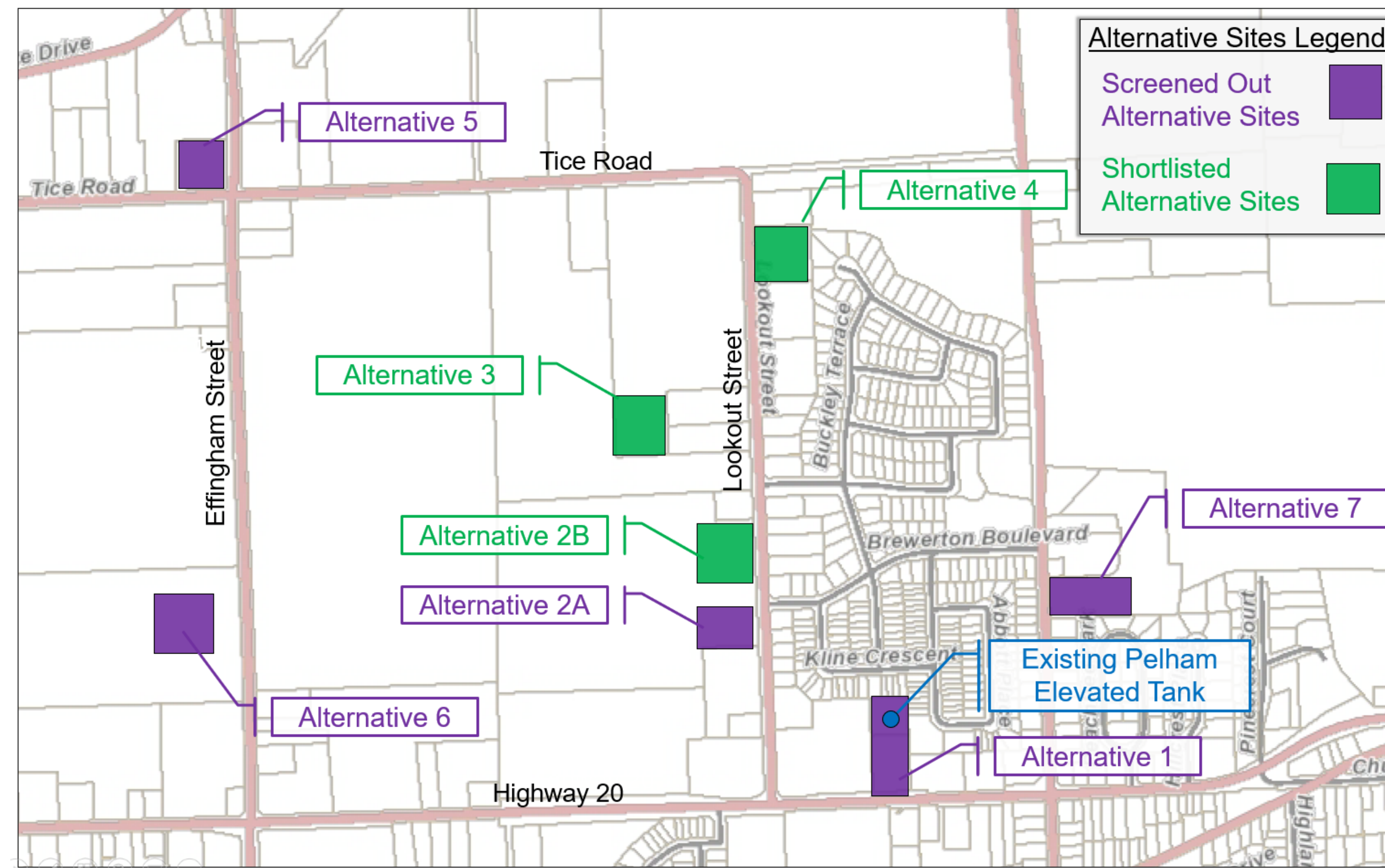
The greater the height difference between the water level in a water tank and a house, the more water pressure is available for that house.

The house at the top of the hill will have lower water pressure than the house at the bottom of the hill.

An elevated tank should be designed to provide a preferred range of 50 to 70 psi, but a minimum of 40psi to the house on the highest hill, and not more than 100psi to the house at the lowest point in the water system.



Preliminary List & Short List of Alternative Sites



Screening of Alternative Sites:

Alt. #	Description	Key Points	Carry Forward to Short List? (Yes/No)
0	Do Nothing – Baseline scenario, existing ET remains	<ul style="list-style-type: none"> Does not satisfy P&O Statement 	No
1	Existing location of ET	<ul style="list-style-type: none"> Insufficient space 	No
2A	1524 Lookout Street	<ul style="list-style-type: none"> Insufficient space 	No
2B	1542 Lookout Street	<ul style="list-style-type: none"> Adequate space 	Yes
3	South of existing Driving Range	<ul style="list-style-type: none"> Adequate space 	Yes
4	1621 Lookout Street (Existing Bell Tower)	<ul style="list-style-type: none"> Adequate space 	Yes
5	Existing Communications Tower location at Tice Road & Effingham Street	<ul style="list-style-type: none"> Insufficient Space 	No
6	Existing Lafarge Quarry	<ul style="list-style-type: none"> Adequate space, however, close to quarry activity and at a greater distance from the existing infrastructure 	No
7	Haist Street, North of Peachtree Park Cres.	<ul style="list-style-type: none"> Insufficient space and land is already developed 	No

Evaluation Criteria for Reviewing Short Listed Alternatives

Each of the short listed alternatives will be evaluated based on the following criteria:

Criteria	Example Considerations
Social	<ul style="list-style-type: none">• Effects on Indigenous communities• Effects on neighbouring properties• Sensory impacts during and after construction (noise, dust, etc.)• Effects on the municipality, local businesses, etc.• Future growth as per the Region Official Plan
Economical	<ul style="list-style-type: none">• Life cycle costs (capital cost, operation & maintenance cost)• Sustainability and affordability

Criteria	Example Considerations
Technical	<ul style="list-style-type: none">• Compatibility with existing systems• Ease of implementation• Effects on operations and maintenance• Treatment complexity• Ability to meet existing and future water demands
Archaeological	<ul style="list-style-type: none">• Effects on archeological sites or structures• Effects on cultural sites or structures
Environmental	<ul style="list-style-type: none">• Effects on wildlife and vegetation• Effects on habitats and air quality• Effects on Source Water Protection• Climate Change

Evaluation of Short Listed Alternatives Sites



Evaluation Criteria	Alternative Site 2B – 1524 Lookout Street	Rating	Alternative Site 3 – South of Driving Range	Rating	Alternative Site 4 – 1621 Lookout Street	Rating
Social	<ul style="list-style-type: none"> Zoned as Residential; rezoning required Land privately owned and part of a large, 30-acre property; severance of land may impact property owner Higher aesthetic impacts to surrounding properties as closer to more houses and Lookout Street 		<ul style="list-style-type: none"> Zoned as Agriculture with an amendment to allow the Golf Course; rezoning required Land privately owned by Golf Course; severance of land may have minimal impact on property owner Lower aesthetic impacts to surrounding properties as further away from Lookout Street 		<ul style="list-style-type: none"> Zoned as Agricultural; rezoning required Land privately owned; Owner not currently open to selling land. Higher aesthetic impacts to surrounding properties as closer to more houses and Lookout Street 	
Economical	<ul style="list-style-type: none"> Higher capital costs anticipated related to land acquisition & overall ET height based on ground elevation Lower capital cost for shorter watermain Similar operation and maintenance lifecycle costs anticipated for all alternatives 		<ul style="list-style-type: none"> Lower capital costs anticipated related to land acquisition & overall ET height based on ground elevation Moderate capital cost for longer watermain Similar operation and maintenance lifecycle costs anticipated for all alternatives 		<ul style="list-style-type: none"> Moderate capital costs anticipated related to land acquisition & overall ET height based on ground elevation Highest capital cost for longer watermain Similar operation and maintenance lifecycle costs anticipated for all alternatives 	
Technical	<ul style="list-style-type: none"> Similar approvals anticipated to be required Similar operations and maintenance effects Similar improvements to water distribution system for pressure and fire flows Closer to existing watercourse and may be more difficult to construct ET due to soil condition and groundwater levels Existing communications tower nearby – interruption of signals to be minimized 		<ul style="list-style-type: none"> Similar approvals anticipated to be required Similar operations and maintenance effects Similar improvements to water distribution system for pressure and fire flows Slightly further from existing watercourse and may impact construction ET due to soil condition and groundwater levels Existing communications tower nearby – interruption of signals to be minimized 		<ul style="list-style-type: none"> Similar approvals anticipated to be required Similar operations and maintenance effects Similar improvements to water distribution system for pressure and fire flows Existing communications tower on same site – would cause major interruption of service during ET construction 	
Archaeological	<ul style="list-style-type: none"> Potential for archaeological interest. 		<ul style="list-style-type: none"> Less potential for archaeological interest as land has been previously disturbed 		<ul style="list-style-type: none"> Less potential for archaeological interest as land has been previously disturbed 	
Environmental	<ul style="list-style-type: none"> Moderate impact from natural environmental perspective, with mitigation measures required during design/construction: <ul style="list-style-type: none"> Many Barn Swallows observed (Species at Risk) Located on Provincially Significant Area of Natural and Scientific Interest (Kame Delta Formation) Located in Greenbelt Plan Area 		<ul style="list-style-type: none"> Moderate impact from natural environmental perspective, with mitigation measures required during design/construction: <ul style="list-style-type: none"> Many Barn Swallows observed (Species at Risk) Located on Provincially Significant Area of Natural and Scientific Interest (Kame Delta Formation) Located in Greenbelt Plan Area 		<ul style="list-style-type: none"> Least impact from natural environmental perspective: <ul style="list-style-type: none"> Least amount of bird activity Locally rare trees along forest edge 	
Overall Conclusion	Alternative will not be carried forward.		Alternative to be carried forward – Recommended Alternative Site		Alternative will not be carried forward.	



Alternative 3 - New Elevated Tank (ET) South of Golf Driving Range:

- New ET approx. 44m tall above ground level
- New watermain from ET connected to existing transmission main
- New access road to ET
- Space for additional infrastructure e.g. overflow pond
- Demolition of existing Pelham ET

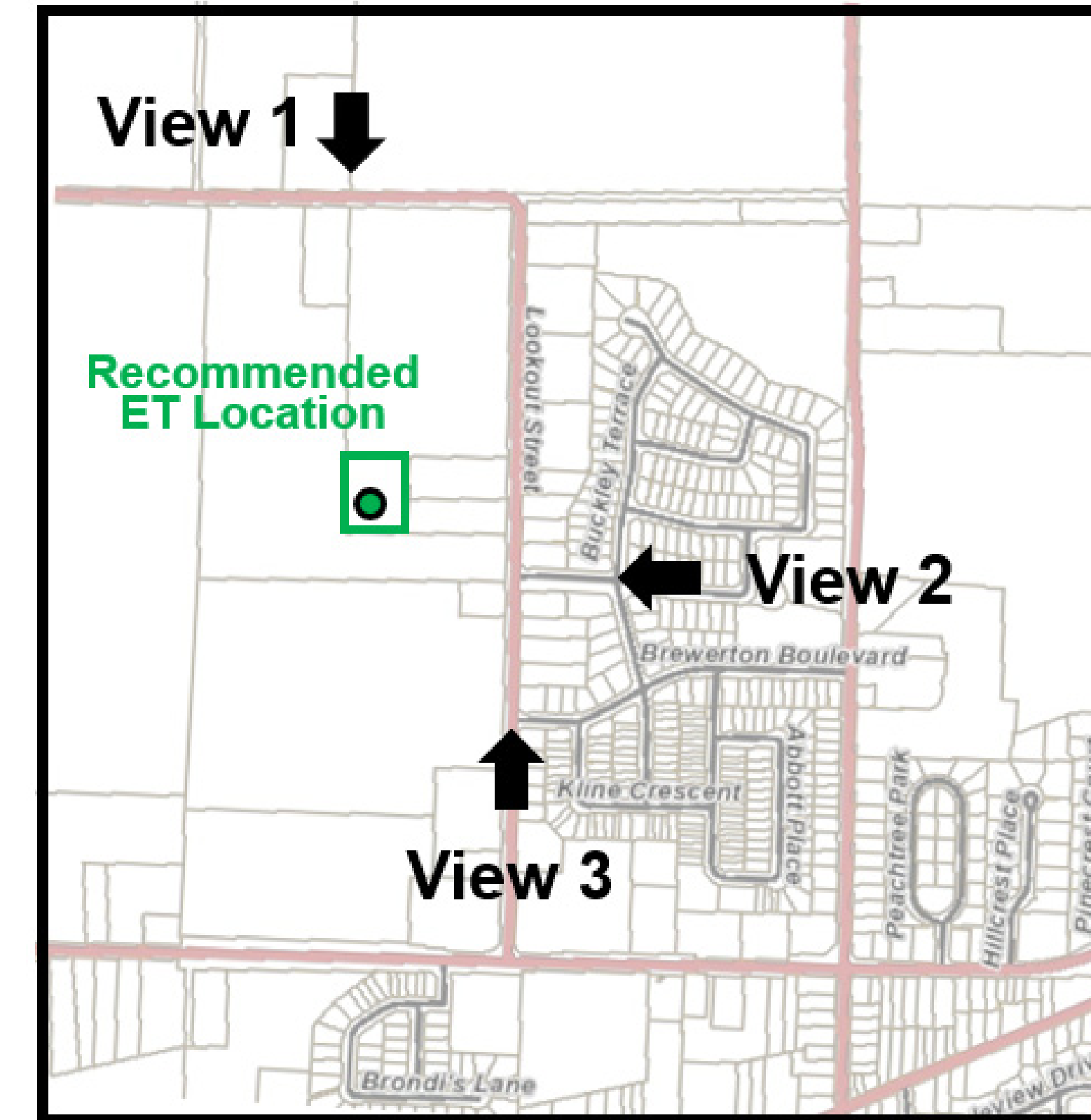
Recommendation pending:

- Stakeholder input
- Stage 2 Archaeological Assessment
- Geotechnical/hydrogeological study

Artistic Rendering of Recommended Location for New Elevated Tank



View 1 – Tice Road at Existing Driving Range Looking South



Key Map



View 2 – Marlene Stewart Drive and Near Buckley Terrace Looking West



View 3 – Lookout Street Near Brewerton Boulevard Looking North

Next Steps & Comments

The Project Team will be completing the field work for the archaeological and geotechnical investigations to confirm the preferred option prior to proceeding with the conceptual design.

Public Input

Opportunity	Anticipated Date
Project File Report for Public Review	Winter 2019/2020

Questions or Comments?

Please complete a comment sheet this evening or submit comments to staff below. More information including copies of project notices and PIC materials can be found at:

<https://www.niagararegion.ca>

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A dark grey background with a network diagram of interconnected nodes and lines. The nodes are represented by small circles, and the lines are thin and light grey. The network is denser on the left side and fades towards the right.

MOVING WATER FORWARD

CONNECTING MORE PEOPLE TO MORE POSSIBILITIES

Public Information Centre

Pelham New Elevated Storage Tank and Enhanced Conceptual Design Class Environmental Assessment

Virtual Public Information Centre Timeline

Tuesday, Aug. 31, 2021: Project information, project overview video, and transcript posted on Niagara Region's website.

Aug. 31 to Sept. 14, 2021: Submit questions or comments via the online form.

Sept. 28, 2021: Responses to questions and comments will be posted to the website.

Welcome

We invite you to view the virtual Public Information Centre (PIC) presentation which includes:

- What we plan to achieve
- Study findings to date
- Evaluation of the alternative sites
- Next steps

Please review the materials and submit your comments through comment sheets available at:

<https://www.niagararegion.ca/projects/pelham-elevated-tank>



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MOVING
WATER
FORWARD

CONNECTING MORE PEOPLE TO MORE POSSIBILITIES

Niagara  Region

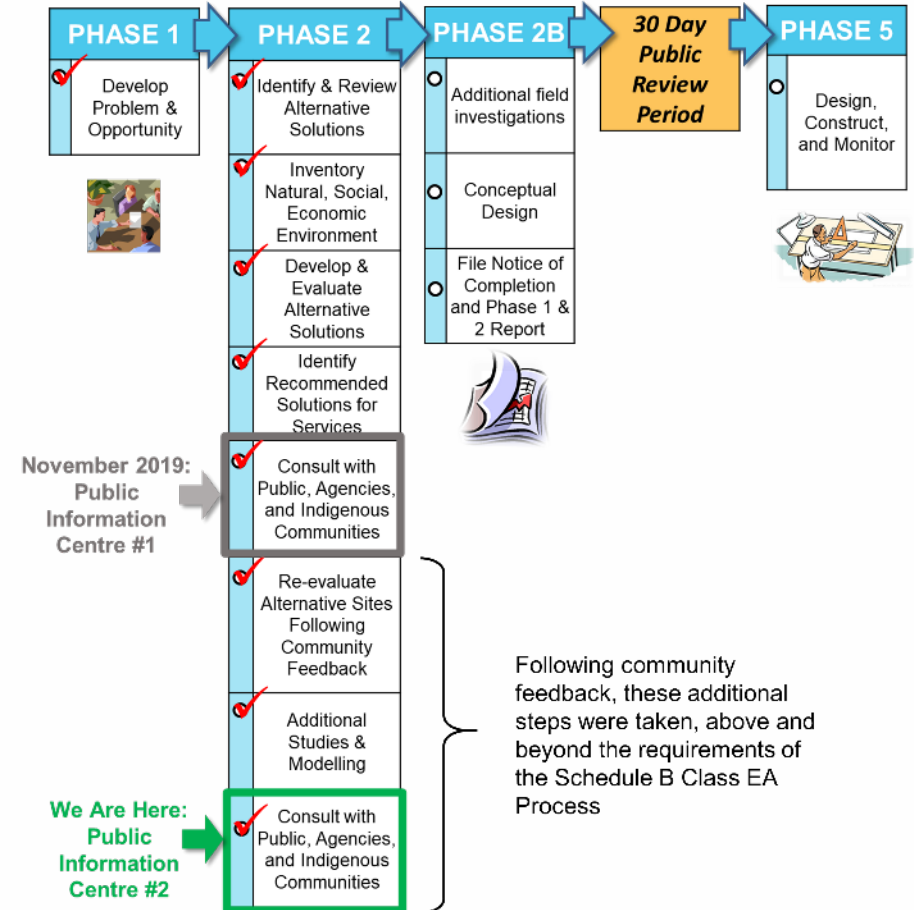
Municipal Class EA Process & Timeline

Niagara Region is undertaking a Schedule B Municipal Class EA study for the Pelham Water Service Area to plan for future water storage, pressure needs and make improvements to the water system, as required.

The Pelham Class EA study to date:

- Started in May 2019 with the Notice of Commencement
- Identified and evaluated alternative solutions from May-November 2019
- Presented identified recommended solution in Public Information Centre (PIC) #1 November 2019
- We heard your comments at PIC #1 for additional consultation and review of the potential sites for the new Elevated Water Storage Tank (EST).
- Based on this, the Project Team has reconsidered and re-evaluated suitable sites within the Town of Pelham for the construction of a new EST and the necessary improvements to the existing water system, and identified a recommended solution

Schedule B Municipal Class EA Process



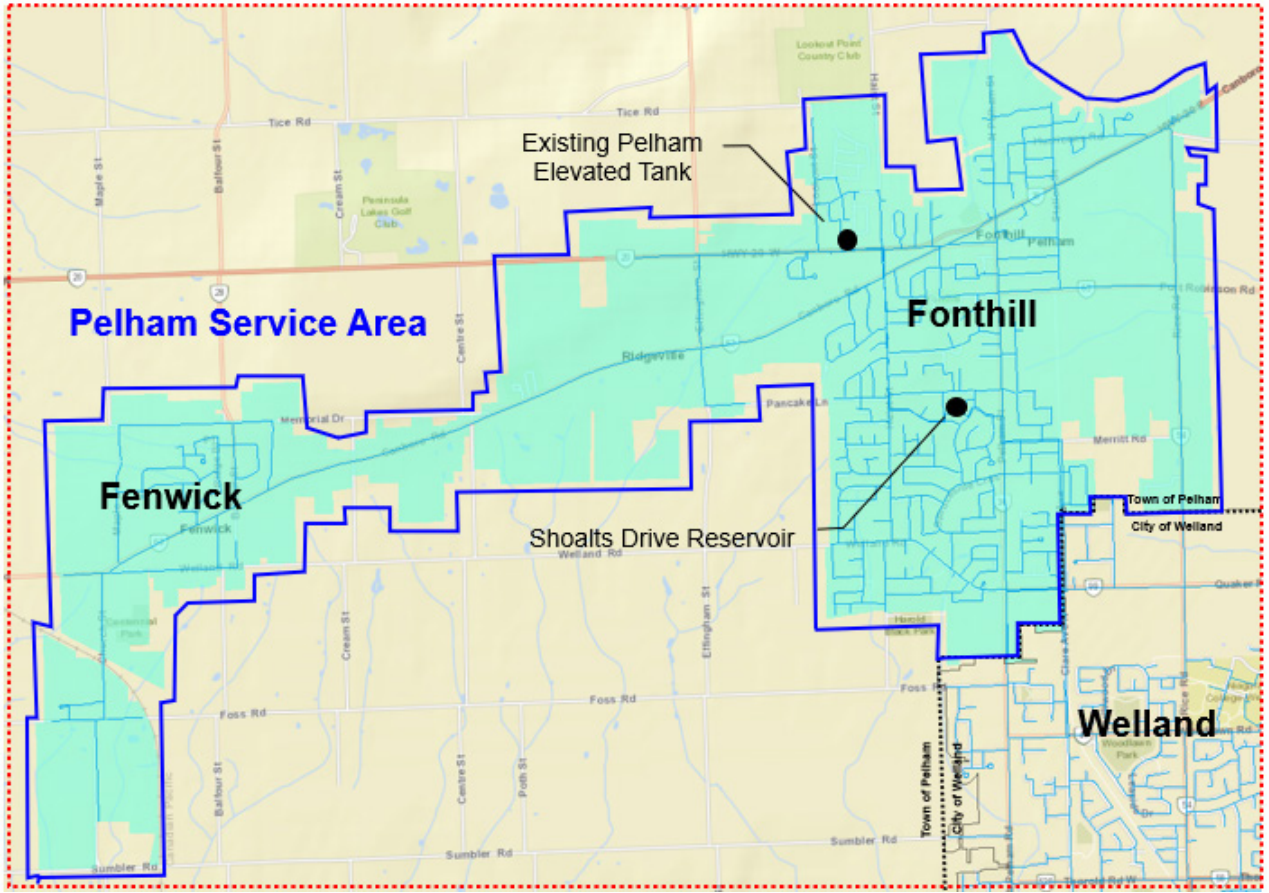
Problem & Opportunity (P&O) Statement & Study Area

The Pelham Water Service Area requires improvements to meet the need of the growing community and expected increasing growth to 2041. The need for these improvements was identified through the Niagara Region Water and Wastewater Master Servicing Plan in 2016:

- Construction of a New Elevated Water Storage Tank (EST) and associated system upgrades.

This Class EA will:

- Identify and evaluate potential sites for the new EST.
- Identify necessary improvements to the existing water service area.
- Select a preferred site and associated system upgrades for the new EST considering social, economical, technical, archaeological, and environmental factors.



The Pelham Service Area:

- Part of the overall Welland Water System. Services Fonthill and Fenwick. Supplies water from the Welland Water Treatment Plant through the Shoalts Drive Reservoir and existing Pelham EST.
- The storage capacity of the existing EST is not sufficient for the growing community of Pelham. In addition, it cannot meet desired pressures at higher elevations in northwest Fonthill without the need for a booster pumping station.
- Storage and pressure needs can both be met by removing the existing 2,000 m³ EST and booster pumping station and replacing them with a 6,000 m³ EST at a higher elevation.



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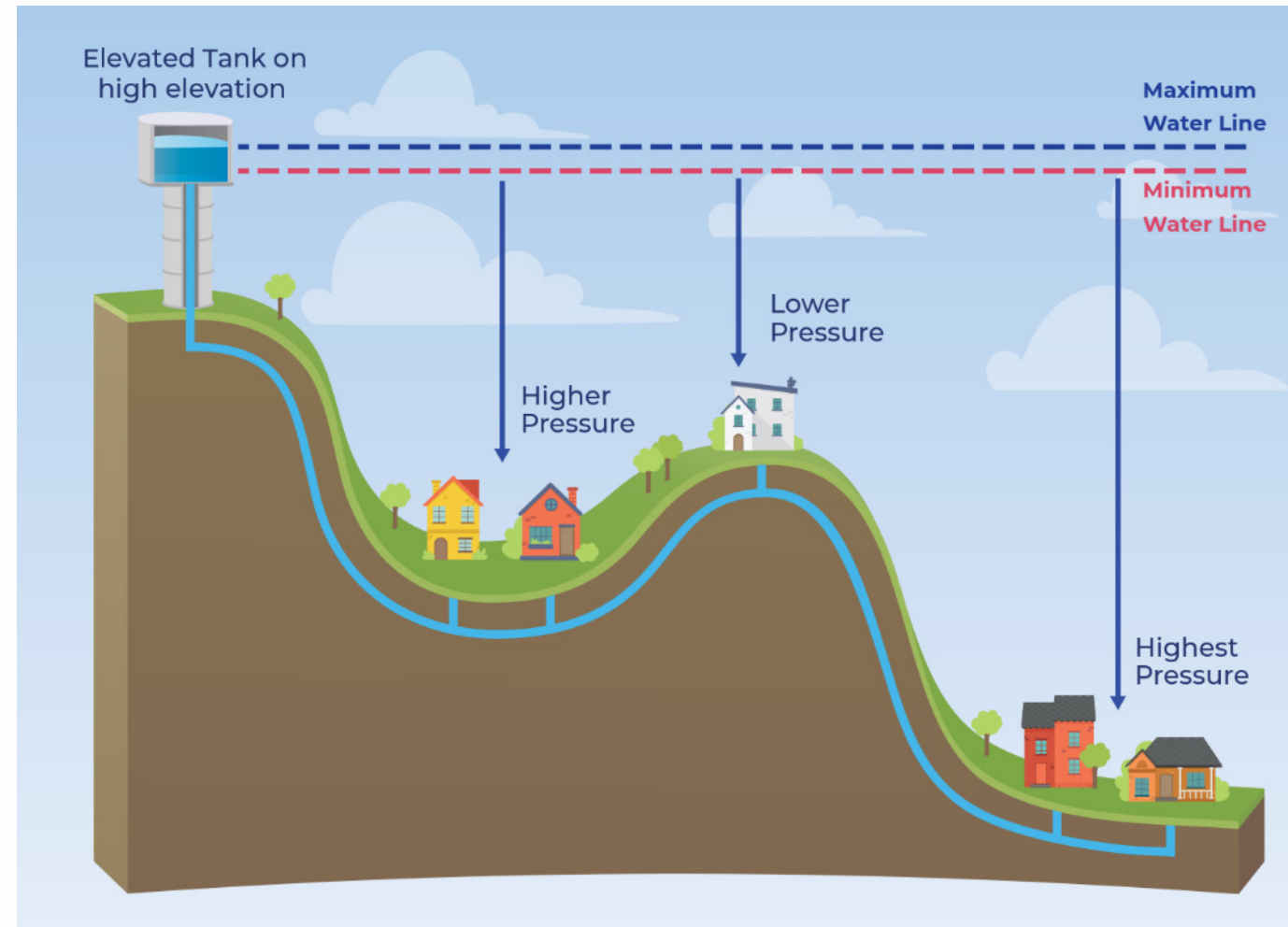


How the Water System Works

The greater the height difference between the water level in an elevated water storage tank (EST) and a home, the more water pressure is available for that home.

The home at the top of the hill will have lower water pressure than the home at the bottom of the hill.

It is preferred to have an EST that can provide the Region of Niagara's preferred pressure range of 50 to 80 psi to the local system. The local system must provide a minimum of 40 psi to the home on the highest hill, and not more than 100 psi to the home at the lowest point in the water service area, to meet the Ministry of Environment, Conservation and Parks (MECP) acceptable pressure range.



Screening of Areas to Locate Alternative Sites

Screening Factors:

Elevation ■

- Elevation too low for required height of EST

Land Use ■

- Land is forested or occupied by: homes, golf, commercial uses, communication towers

Distance ■

- Further from urban settlements and Regional transmission main, and would require additional infrastructure and cost

Space Limitations ■

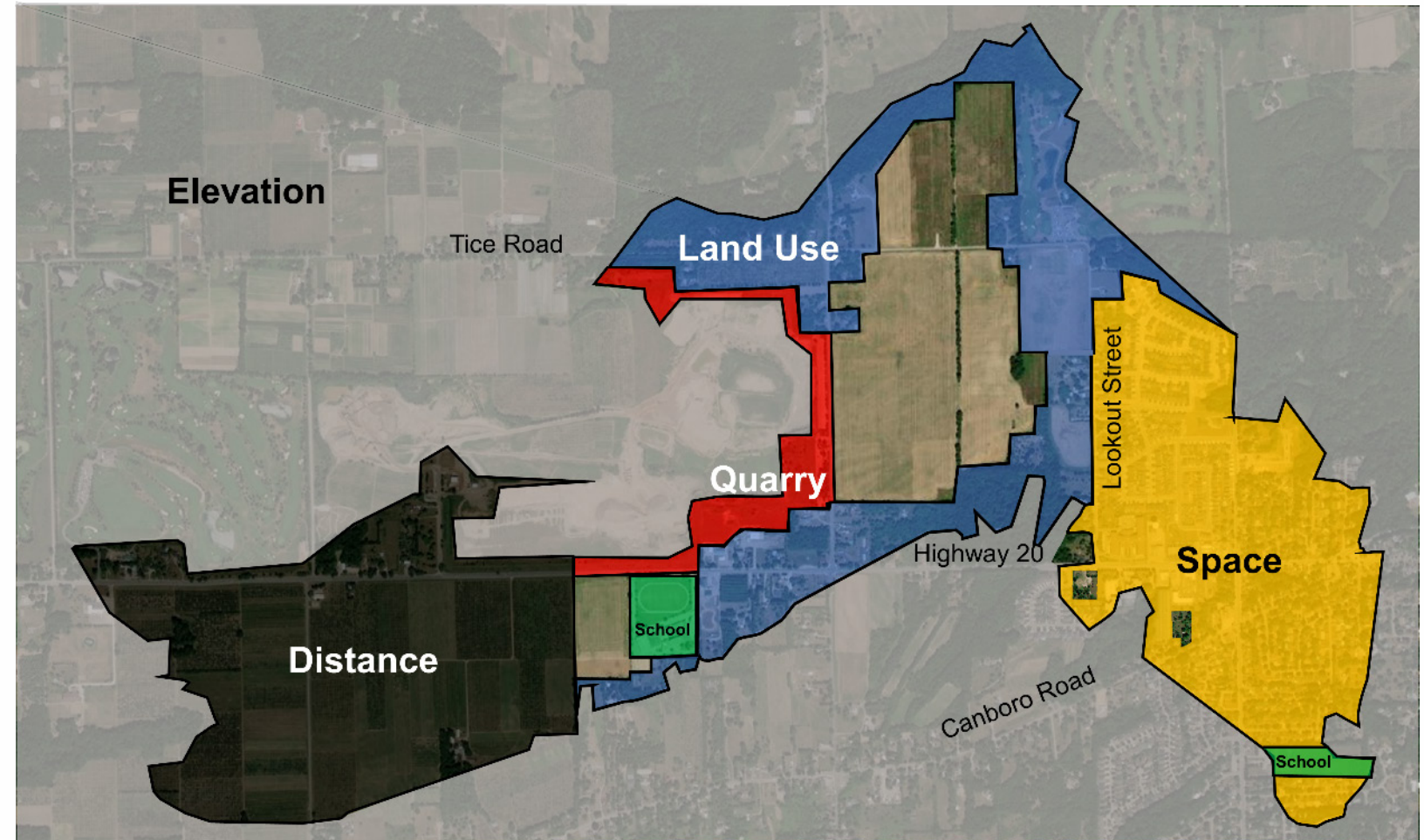
- Dense residential or commercial, insufficient space for EST

Quarry ■

- Impacts from quarry activities

School ■

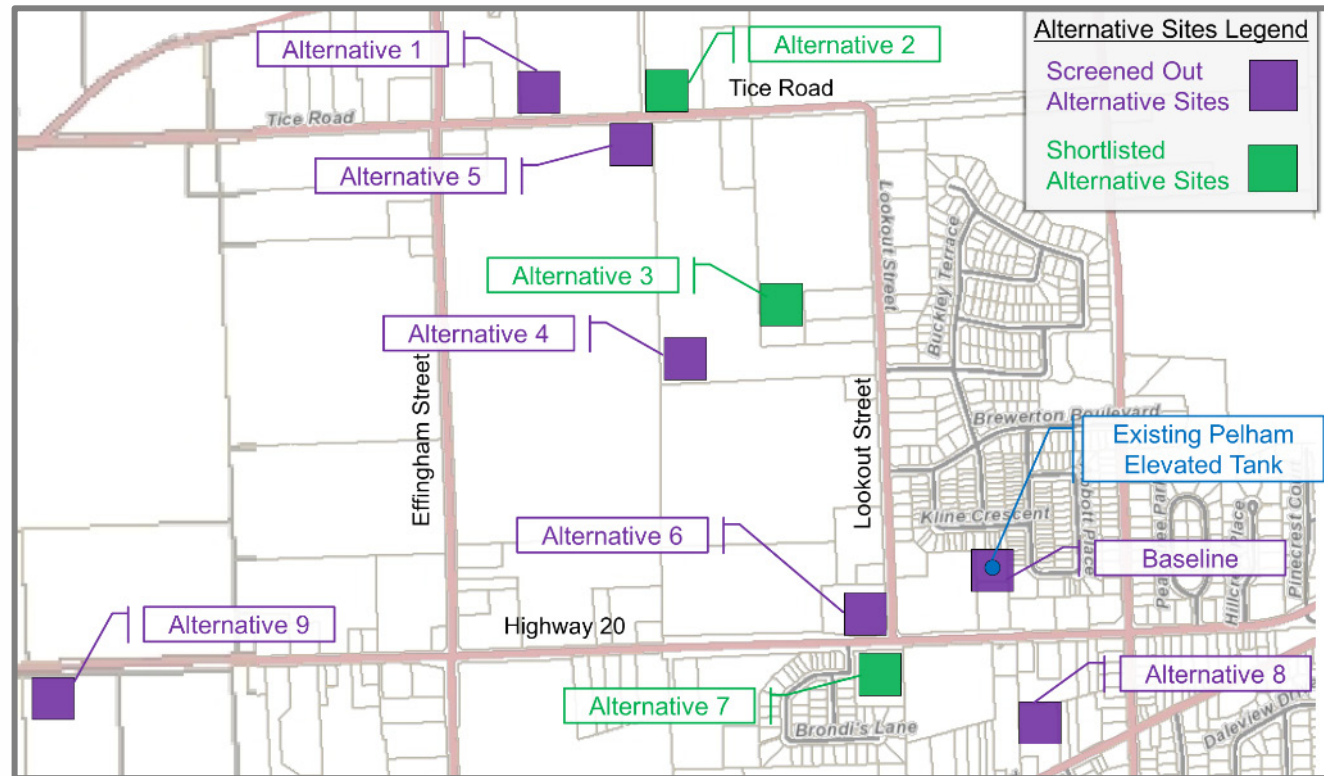
- Disruptive to operation of school, reduces yard size



Potential areas in which the new EST could be located were screened based on listed factors. Some areas were screened out by more than one factor. For the purpose of simplicity, the main factor is shown in the figure above. A preliminary list of alternative EST sites was developed based on areas that passed the screening process (refer to following panel for preliminary list of sites).

Preliminary List & Short List of Alternative Sites

Further Screening of Alternative Sites:



Alt. #	Description	Key Points	Carry Forward to Short List?
0	Do Nothing – Baseline scenario, existing EST remains	<ul style="list-style-type: none"> Does not satisfy Problem & Opportunity Statement 	No
1	East of 275 Tice Road	<ul style="list-style-type: none"> Currently farmed 	No
2	West of 229 Tice Road	<ul style="list-style-type: none"> Adequate space, currently vacant, further from Regional transmission main 	Yes
3	South of existing Golf Driving Range (220 Tice Road)	<ul style="list-style-type: none"> Adequate space, currently vacant, property owner willing to sell 	Yes
4	1574 Lookout Street	<ul style="list-style-type: none"> Currently farmed, residential buildings on property 	No
5	1591 Effingham Street	<ul style="list-style-type: none"> Currently farmed, residential buildings on property 	No
6	205 Hwy 20 West	<ul style="list-style-type: none"> Insufficient space, lower elevation, residential area, partly wooded 	No
7	202 Hwy 20 West	<ul style="list-style-type: none"> Adequate space, currently vacant, but lower elevation, residential area 	Yes
8	169 Canboro Road	<ul style="list-style-type: none"> Lower elevation, residential buildings on property, residential area 	No
9	West of School (350 Hwy 20 West)	<ul style="list-style-type: none"> Adequate space, however close to school and at a greater distance from the Regional watermain and urban settlement areas 	No

Evaluation Criteria for Reviewing Short Listed Alternatives

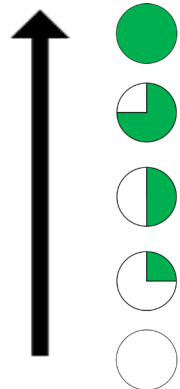
Each of the short listed alternatives will be evaluated based on the following criteria:

Criteria	Example Considerations
Social	<ul style="list-style-type: none"> • Effects on neighbouring properties • Effects on Indigenous communities • Sensory impacts during and after construction (noise, dust, etc.) • Effects on the municipality, local businesses, etc. • Future growth as per the Region Official Plan
Economical	<ul style="list-style-type: none"> • Life cycle costs (capital cost, operation & maintenance cost) • Sustainability and affordability

Criteria	Example Considerations
Technical	<ul style="list-style-type: none"> • Compatibility with existing systems • Ease of implementation • Effects on operations and maintenance • System complexity and redundancy • Ability to meet existing and future water demands and provide expected Level of Service
Archaeological	<ul style="list-style-type: none"> • Effects on archeological sites or structures • Effects on cultural sites or structures
Environmental	<ul style="list-style-type: none"> • Effects on wildlife and vegetation • Effects on habitats and air quality • Effects on Source Water Protection • Climate Change

Evaluation of Short Listed Alternatives Sites

Lowest Impact
(Most Positive Solution)

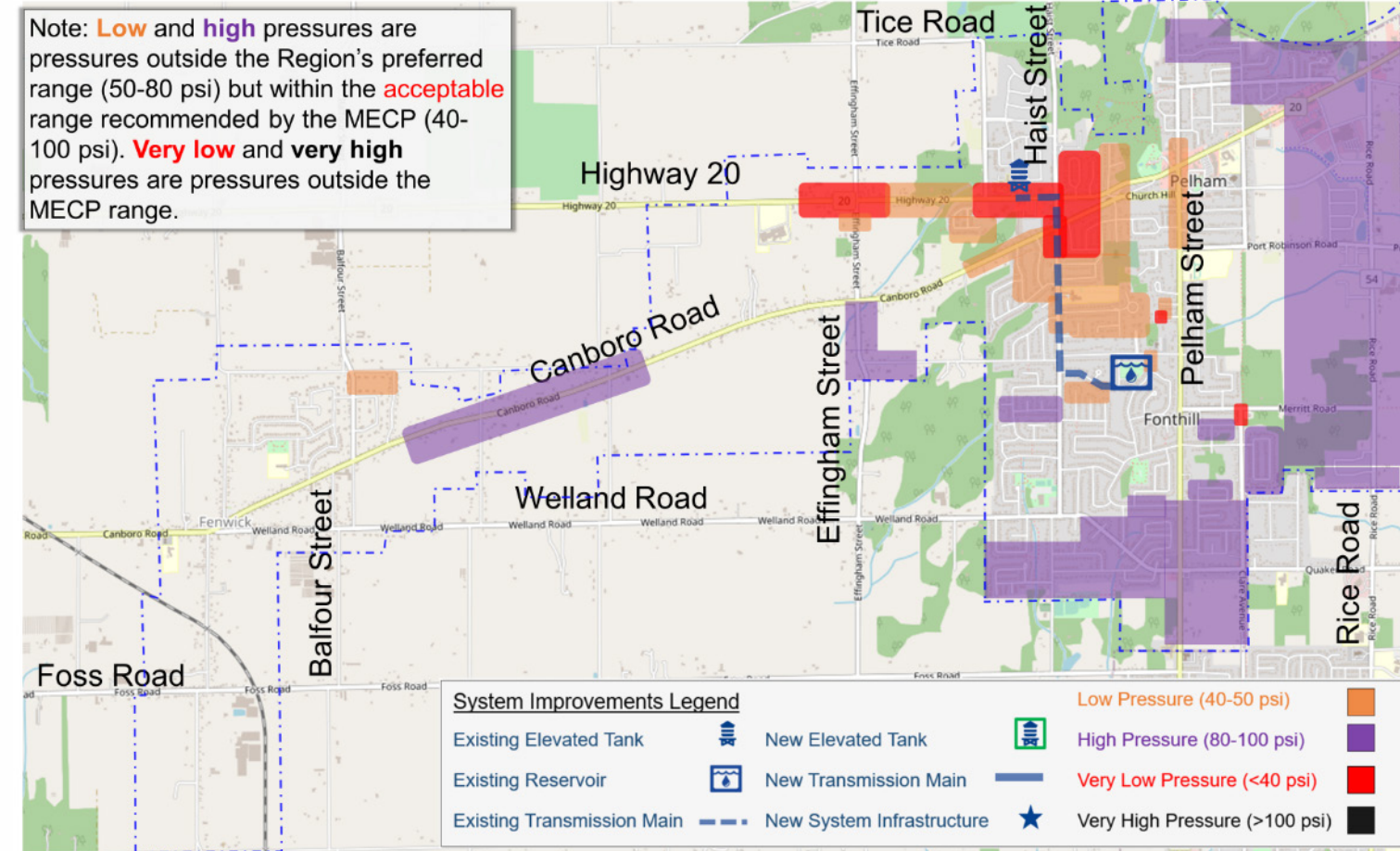


Highest Impact
(Most Negative Solution)

Evaluation Criteria	Alternative Site 2 – West of 229 Tice Road	Rating	Alternative Site 3 – South of Driving Range	Rating	Alternative Site 7 – 202 Hwy 20 West	Rating
Social	<ul style="list-style-type: none"> Zoned as Residential, Commercial or Industrial; rezoning required Land privately owned, currently vacant. Part of a large, 23-acre property; severance of land may impact property owner Moderate aesthetic impacts to surrounding properties as further away from Lookout Street 		<ul style="list-style-type: none"> Zoned as Agriculture with an amendment to allow the Golf Course; rezoning required Land privately owned by Golf Course; severance of land required, property owner has indicated willingness to sell Moderate aesthetic impacts to surrounding properties as further away from Lookout Street 		<ul style="list-style-type: none"> Zoned as Residential; rezoning required Land privately owned; currently vacant. Part of a 2.5 acre property; purchase of whole property required Higher aesthetic impacts to surrounding properties as closer Lookout Street & Highway 20 West residential area (houses, condos) 	
Economical	<ul style="list-style-type: none"> Moderate capital costs anticipated for land acquisition & overall EST height based on ground elevation Highest capital cost for longer watermain Similar EST operation and maintenance lifecycle costs anticipated for all tank locations 		<ul style="list-style-type: none"> Lower capital costs anticipated related to land acquisition & overall EST height based on ground elevation Moderate capital cost for longer watermain Similar EST operation and maintenance lifecycle costs anticipated for all tank locations 		<ul style="list-style-type: none"> Higher capital costs anticipated for land acquisition & overall EST height based on ground elevation Lower capital cost for shorter watermain Similar EST operation and maintenance lifecycle costs anticipated for all tank locations 	
Technical	<ul style="list-style-type: none"> Similar approvals anticipated to be required Similar operations and maintenance effects Similar improvements to water distribution system for pressure and fire flows Further from existing watercourse – if carried forward, geotechnical/hydrogeological study required to determine construction impacts Existing communications tower nearby – interruption of signals to be minimized 		<ul style="list-style-type: none"> Similar approvals anticipated to be required Similar operations and maintenance effects Similar improvements to water distribution system for pressure and fire flows Further from existing watercourse – if carried forward, geotechnical/hydrogeological study required to determine construction impacts Existing communications tower nearby – interruption of signals to be minimized 		<ul style="list-style-type: none"> Similar approvals anticipated to be required Similar operations and maintenance effects Similar improvements to water distribution system for pressure and fire flows Closer to existing watercourse – if carried forward, geotechnical/hydrogeological study required to determine construction impacts 	
Archaeological	<ul style="list-style-type: none"> Potential for archaeological interest. 		<ul style="list-style-type: none"> Less potential for archaeological interest as land has been previously disturbed 		<ul style="list-style-type: none"> Less potential for archaeological interest as land has been previously disturbed and developed 	
Environmental	<ul style="list-style-type: none"> Moderate impact from natural environmental perspective, with mitigation measures required during design/construction: <ul style="list-style-type: none"> If alternative carried forward, field study of vegetation/wildlife required Located on Provincially Significant Area of Natural and Scientific Interest (Kame Delta Formation) Located in Greenbelt and Niagara Escarpment Plan Areas 		<ul style="list-style-type: none"> Moderate impact from natural environmental perspective, with mitigation measures required during design/construction: <ul style="list-style-type: none"> Barn Swallows observed (Species at Risk) Located on Provincially Significant Area of Natural and Scientific Interest (Kame Delta Formation) Located in Greenbelt Plan Area 		<ul style="list-style-type: none"> Least impact from natural environmental perspective: <ul style="list-style-type: none"> If alternative carried forward, field study of vegetation/wildlife required Vacant lot in residential area 	
Overall Conclusion	Alternative will not be carried forward.		Alternative to be carried forward – Recommended Elevated Water Storage Tank Site		Alternative will not be carried forward.	

System Improvement Options: Scenario 0

Scenario 0 (Baseline) in 2041: No Upgrades to System



System Upgrades

- No upgrades

Comparison to 2041 Baseline

Pressures

- Large area in northwest Fonthill will experience low or very low pressures
- Large areas in southern and eastern Fonthill will experience high pressures
- Small area in northeast Fenwick experiences low pressure

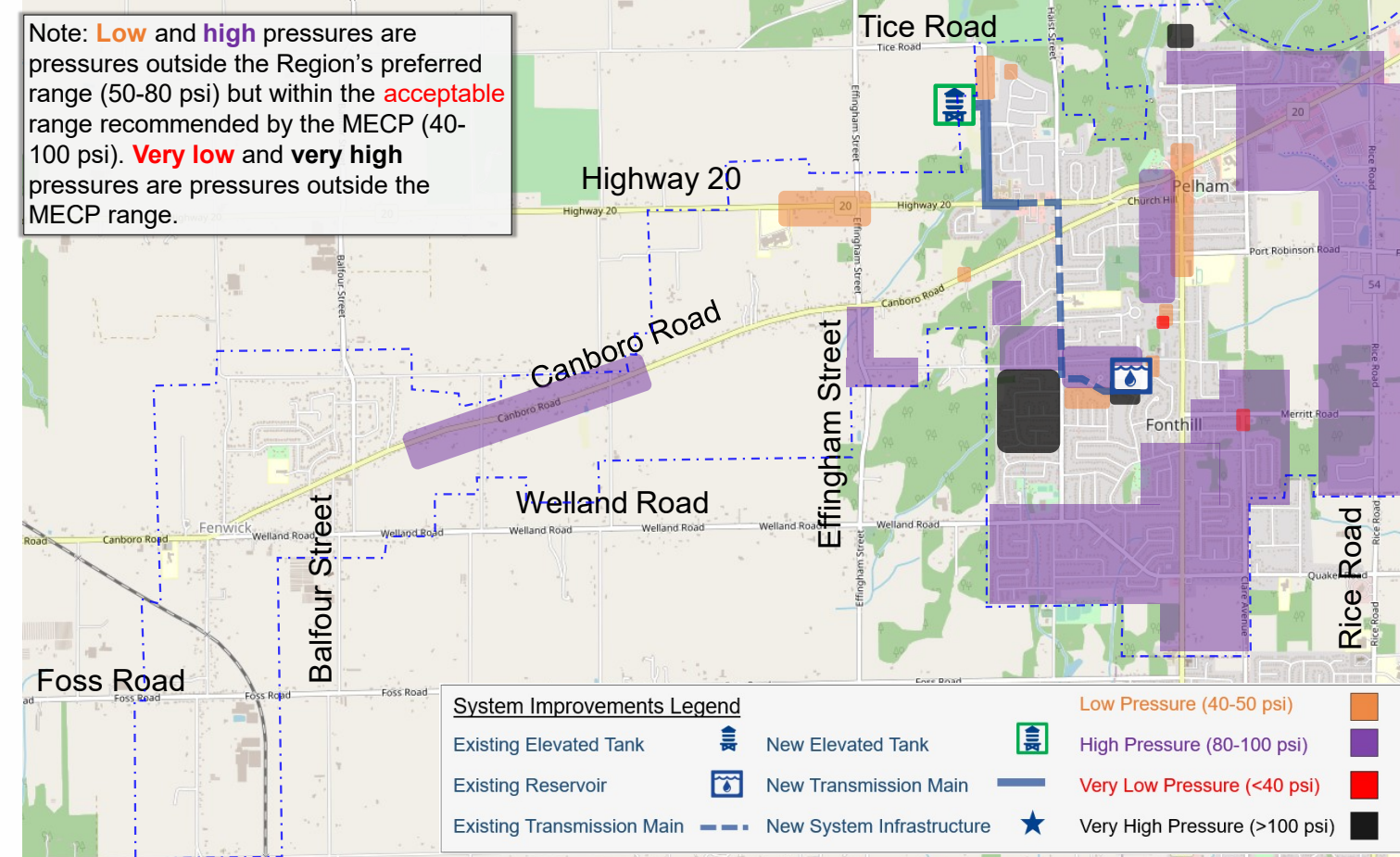
Fire Flows

- Available fire flows worsen compared to present day flows

As Scenario 0 cannot meet the acceptable pressure range while accommodating growth to 2041, it will not be carried forward. Baseline pressures and fire flows will be used as a comparison point for Scenarios 1, 2 and 3.

System Improvement Options: Scenario 1

Scenario 1 in 2041: New Elevated Storage Tank



System Upgrades

- New pumps at Shoalts Drive reservoir
- New Elevated Storage Tank (EST)
- New Regional transmission main connects new EST to existing transmission main

Comparison to 2041 Baseline

Pressures

- Overall, fewer areas experience low or very low pressure, and more areas experience high pressure
- Certain areas in central and northern Fonthill experience very high pressure
- Fenwick is within the preferred pressure range

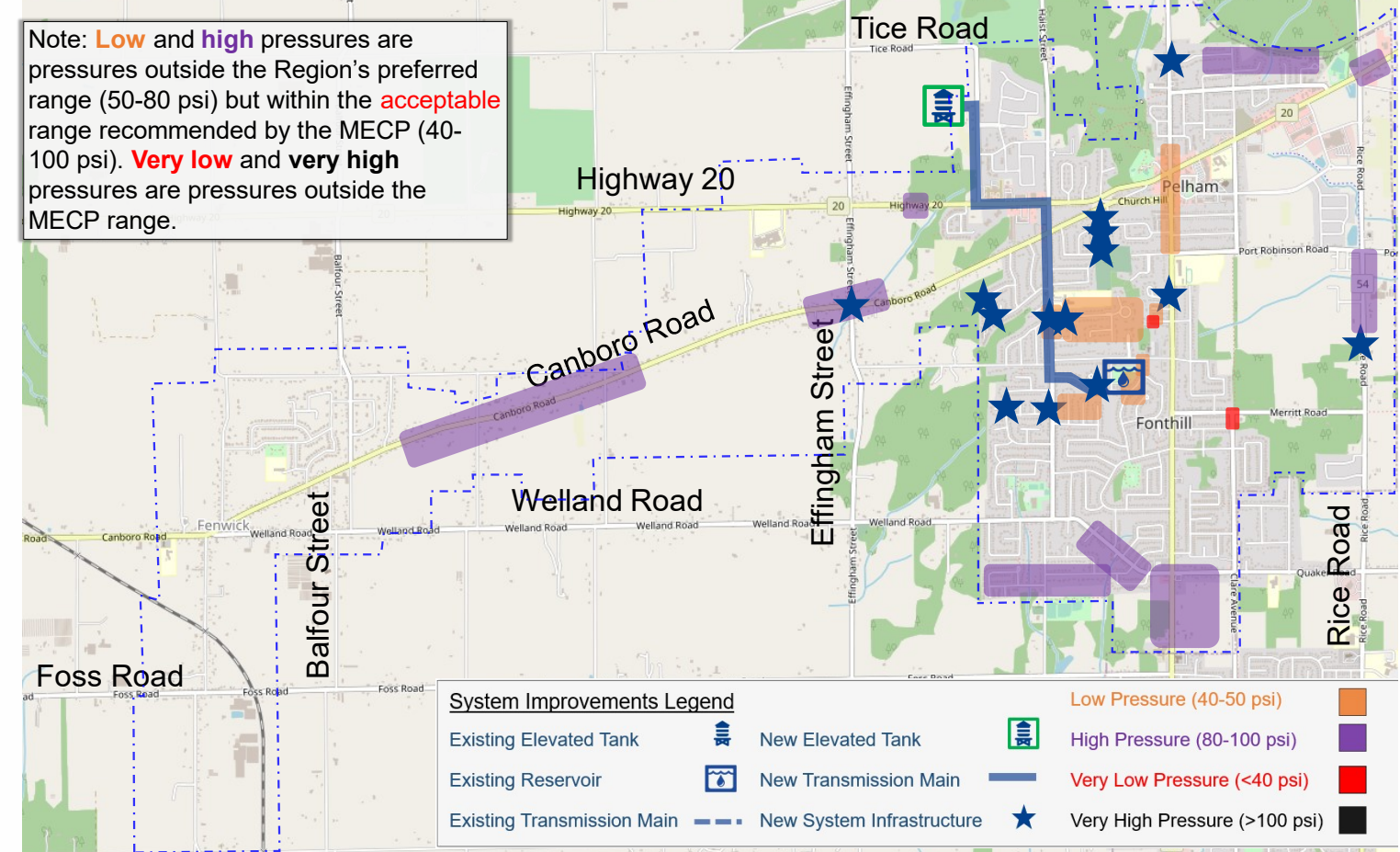
Fire Flows

- Available fire flows improved compared to baseline
- Further improvements could be achieved by upgrading small and dead-ended watermains

Conclusion: Scenario 1 cannot meet acceptable pressure range while accommodating growth to 2041. Therefore, it will not be carried forward.

System Improvement Options: Scenario 2

Scenario 2 in 2041: New EST, Transmission Main & System Infrastructure



System Upgrades

- New pumps at Shoalts Drive reservoir
- New Elevated Storage Tank (EST)
- New, larger transmission main connects reservoir to EST, and connects to local system
- Significant amount of additional new system infrastructure required (pressure control valve chambers; ★)

Comparison to 2041 Baseline

Pressures

- Overall, fewer areas experience low, high or very low pressures
- No areas with very high pressure
- Most of Fenwick is within the preferred pressure range

Fire Flows

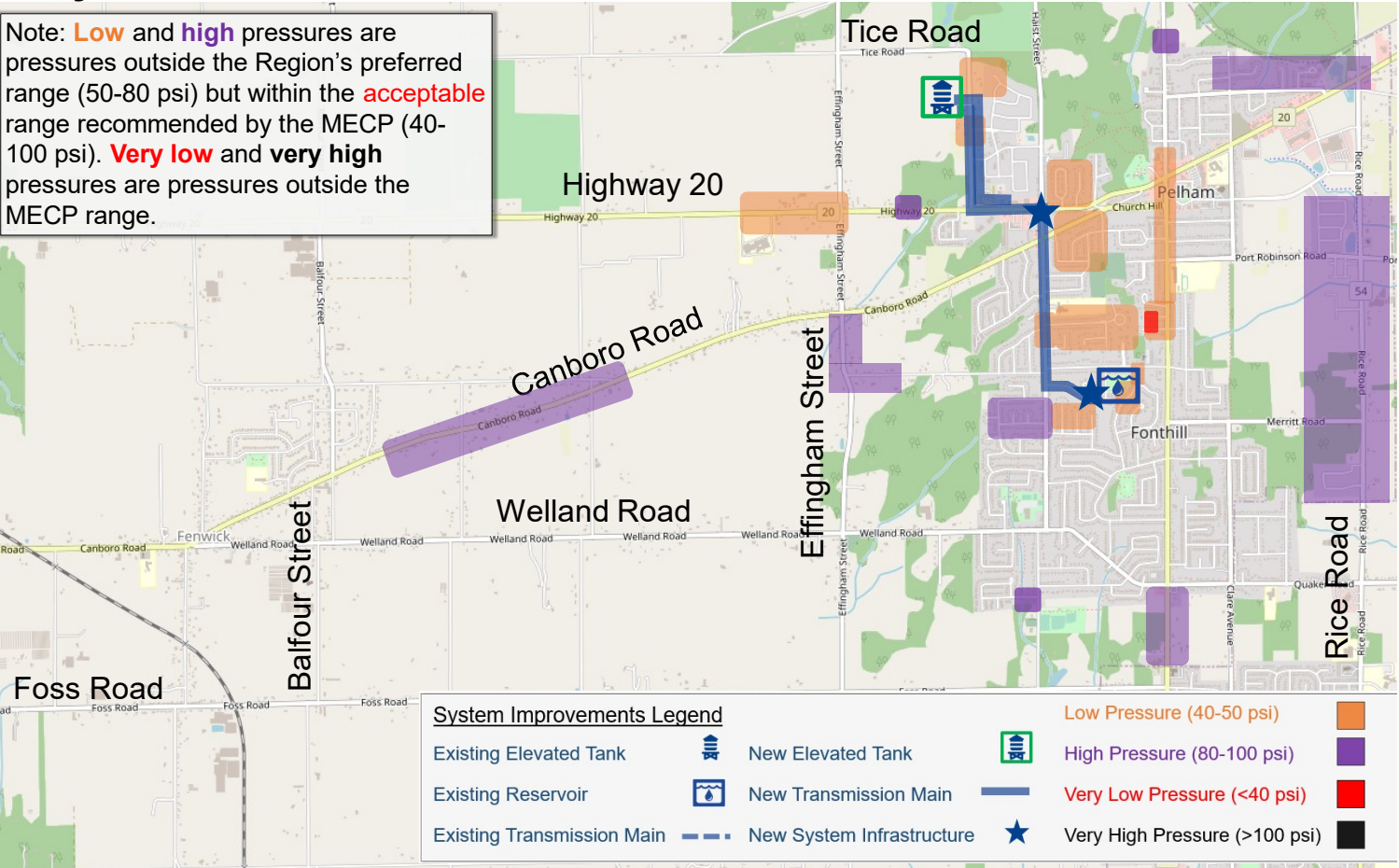
- Available fire flows improved compared to baseline
- Further improvements could be achieved by upgrading small and dead-ended watermains

Conclusion: Scenario 2 has more areas in the preferred pressure range and improves fire flows. This will be carried forward for comparison with Scenario 3.

System Improvement Options: Scenario 3

Scenario 3 in 2041: New EST, Dedicated Transmission Main & System Infrastructure

Note: **Low** and **high** pressures are pressures outside the Region's preferred range (50-80 psi) but within the **acceptable** range recommended by the MECP (40-100 psi). **Very low** and **very high** pressures are pressures outside the MECP range.



System Upgrades

- New pumps at Shoalts Drive reservoir
- New Elevated Storage Tank (EST)
- New, larger transmission main connects reservoir to EST, existing transmission main stays connected to local system
- Significant amount of new system infrastructure required (pressure control valve chambers)

Comparison to 2041 Baseline

Pressures

- Overall, fewer areas experience low, high or very low pressures
- No areas of very high pressure
- Most of Fenwick is within the preferred pressure range

Fire Flows

- Available fire flows improved compared to baseline
- Further improvements could be achieved by upgrading small and dead-ended watermains

Conclusion: Scenario 3 has more areas in the preferred pressure range and improves fire flows compared to baseline. Scenario 3 also requires less new system infrastructure than Scenario 2, reducing lifecycle costs, as well as construction, operation and maintenance impacts. Therefore, Scenario 3 is recommended.

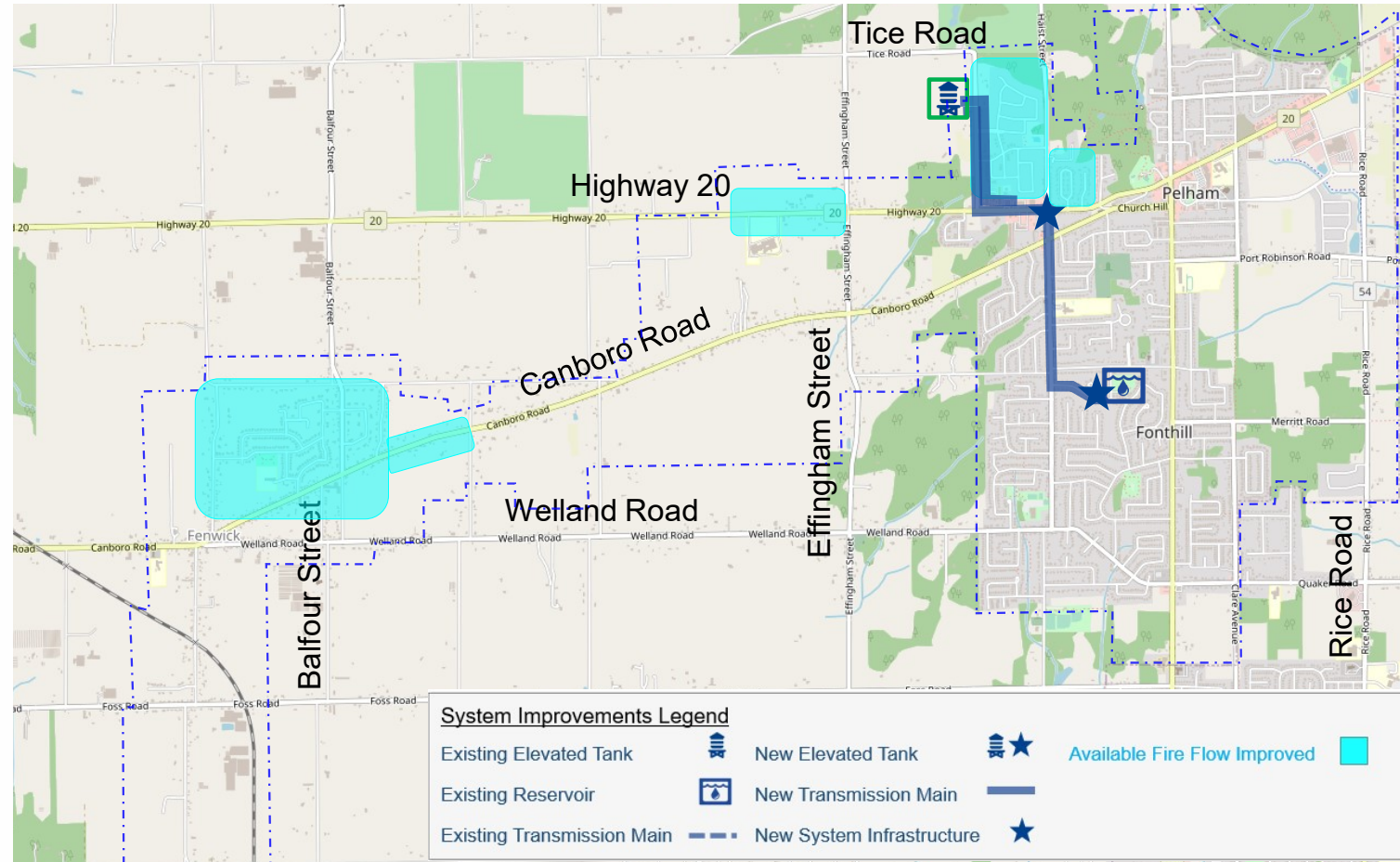


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System Improvement Options: Scenario 3 – Fire Flows

Scenario 3 in 2041: New EST, Dedicated Transmission Main & System Infrastructure



Comparison to 2041 Baseline

Fire Flows

- Available fire flows improved compared to baseline
- Areas west of Effingham Street & Highway 20 West, east of Lookout Street and in northern Fenwick improved from low fire flows in baseline
- Further improvements could be achieved by upgrading small and dead-ended watermains

Conclusion: Scenario 3 improves fire flows compared to baseline. Scenario 3 also requires less new system infrastructure than Scenario 2, reducing lifecycle costs, as well as construction, operation and maintenance impacts. Therefore, Scenario 3 is the recommended option.

Recommended Site & System Improvements

Site Alternative 3 + System Improvement Scenario 3:

New Elevated Storage Tank (EST) South of Golf Driving Range with Dedicated Transmission Main:

- New EST approx. 44m tall above ground level
- Space for additional infrastructure e.g. overflow pond
- New access road to new EST
- Removal of existing Pelham EST and booster station
- New feeder main from existing Shoalts Drive reservoir, with new pumps to fill the new EST
- New watermain from new EST connected to existing Region and local watermains
- New pressure reducing valve chamber at Highway 20 West & Haist Street

Additional Studies to be undertaken as part of Class EA or detailed design:

- Stage 2 Archaeological Assessment
- Geotechnical/hydrogeological study
- Topographic survey

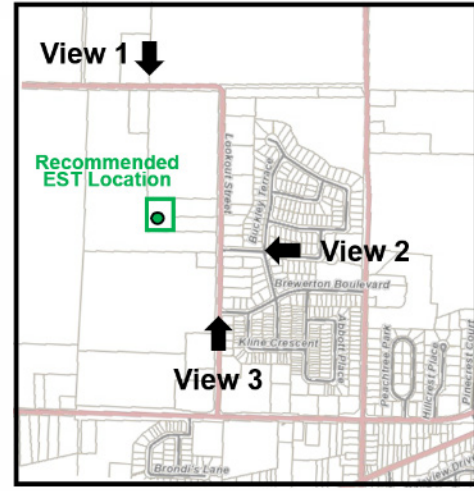


Rendering of Recommended Location for New Elevated Storage Tank



View 1 – Tice Road at Existing Driving Range Looking South

Key Map



View 2 – Marlene Stewart Drive and Near Buckley Terrace Looking West



View 3 – Lookout Street Near Brewerton Boulevard Looking North

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The Project Team will be completing the field work for the archaeological and geotechnical investigations to confirm the preferred location prior to proceeding with design.

Public Input

Opportunity	Anticipated Timeline
Public Information Centre #2's Comment Period	August 31 to September 14, 2021
Class EA/Project File Report for public review	Late 2021

Questions or Comments?

Please download a comment sheet from the project website and submit comments by **September 14, 2021** to: newpelhamelevatedtank@niagararegion.ca

More information including copies of project notices and PIC materials can be found on the Project Website: niagararegion.ca/projects/pelham-elevated-tank/

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Pelham New Elevated storage tank and Enhanced Conceptual Design Class Environmental Assessment

Public Information Centre #2 – Script

Slide 1: Welcome

Hello and welcome everyone to the second Public Information Centre for the Schedule B Class Environmental Assessment for the Pelham New Elevated Storage Tank and Enhanced Conceptual Design Project. My name is Natasha Lee, and I am the Environmental Assessment Coordinator for this project for R.V. Anderson Associates Limited, an Engineering Consulting Firm, and I will be narrating this presentation.

I would like to take a few minutes to explain the format of this virtual Public Information Centre, or “P-I-C”. This presentation will describe what we plan to achieve as part of this project, the study findings to date, an overview of the evaluation of alternative sites for the new elevated storage tank, and the next steps.

Starting August 31, 2021, the project presentation, information and comment forms can be found on Niagara Region’s website (niagararegion.ca/projects/pelham-elevated-tank/)

We invite you to view the virtual PIC presentation and provide comments. For any comments or questions you may have, the following are key dates to note:

- Between **August 31st to September 14th, 2021**: Please submit questions or comments via the online form.
- On **Sept. 28th, 2021**: Responses to questions and comments will be posted to the Region’s website.

Niagara Region is new to virtual public meetings, and we’d like to ask for your patience and understanding as we navigate this new format. While online platforms don’t allow for quite the same face-to-face interaction, please know that we greatly value your feedback and questions and will make every effort to ensure your voice is heard.

With that, we will dive into the presentation.

Slide 2: Municipal Class EA Process & Timeline

Moving on to Slide 2 – The Municipal Class EA process and study timeline.

Niagara Region is undertaking a Schedule B Municipal Class Environmental Assessment, or “Class EA”, for the Pelham Water Service Area in order to plan for future water storage, pressure needs, and to make improvements to the Pelham service area as required.

The Municipal Class EA process is an approved planning process set for municipal infrastructure projects, including water and wastewater projects, and is used by municipal proponents to meet the requirements of the Ontario Environmental Assessment Act. The Municipal Class EA process allows for the identification and evaluation of alternative solutions to a problem or opportunity and mandates a minimum number of opportunities for public and regulatory agency input be provided.

The steps completed to date in the Schedule B Municipal Class EA process, are presented on the right side of this slide, along with upcoming steps in the process. As a summary of the project progress to date:

- This study started in May 2019 with the publication of the Notice of Commencement.
- The Project Team identified and evaluated alternative solutions from May to November 2019.
- We heard your comments at the Nov. 2019 Public Information Center (PIC) for additional consultation and review of the potential sites for the new elevated water storage tank. The new Pelham Elevated Water Storage Tank is an important project to both the community and Niagara Region.
- Based on this, the Project Team has reconsidered and re-evaluated suitable sites within the Town of Pelham for the construction of a new elevated water storage tank and the necessary improvements to the existing water service area and identified a recommended solution.
- This brings us to the current PIC where we are looking for your feedback on the recommended solution identified.

Slide 3: Problem and Opportunity (P&O) Statement & Study Area

Moving on to Slide 3 for the problem and opportunity statement and study area.

The Pelham Service Area requires improvements to meet the need of the growing community and expected increasing growth to 2041. The need for these improvements was identified through the Niagara Region Water and Wastewater Master Servicing Plan in 2016. This includes the construction of a new elevated water storage tank and associated system upgrades to provide opportunities for system optimization and improvements to both the water storage and pressure in the Pelham Service Area.

The purpose and goal of this Class EA is to:

- Identify and evaluate potential sites for the new Pelham Elevated Storage Tank
- Identify necessary improvements to the existing Pelham Service Area, and
- Select a preferred site for the new elevated storage tank considering social, economic, technical, archaeological, and environmental factors.

The Study Area included as part of this Class EA is outlined in the map on the right-hand side of this slide. The Pelham Service Area is part of the overall Welland Water System. On the map you can see the areas which the Pelham Service Area provides municipal water services, which include Fonthill and Fenwick. Water to these areas is supplied from the Welland Water Treatment Plant through the Shoalts Drive Reservoir and existing Pelham Elevated Storage Tank.

The existing water storage tank is not sufficient for the growing community of Pelham. Additionally, the existing elevated storage tank cannot meet the desired pressures at the higher elevations in northern Fonthill without help from the existing booster station. The storage and pressure needs can both be met by removing the existing 2,000 m³ elevated storage tank and booster station and replacing them with a 6,000 m³ elevated storage tank at a higher elevation.

Slide 4: How the Water System Works

Slide 4 shows a diagram of how the water system works with an elevated water storage tank. Ideally, an elevated storage tank is located at a high or the highest elevation in the service area with all the homes at lower elevations. This allows the water stored in the elevated storage tank to flow to each home using gravity in most cases, rather than by pumping. For water pressure, the greater the height difference between the water level in the elevated storage tank and the home, the more water pressure is available to that home. For example, a home at the bottom of the hill will have a higher water pressure than a home at the top of the hill.

That being said, the pressures at homes in a service area are typically set within a certain pressure range. The goal is to have an elevated storage tank that provides water at Niagara Region's preferred pressure range of 50 to 80 psi. While this is the preferred pressure range for Niagara Region, the Ministry of the Environment, Conservation, and Parks (MECP) does have an acceptable pressure range of 40 psi to the home at the highest point in the water service area, and not more than 100 psi to the home at the lowest point in the water service area.

Slide 5: Screening of Areas to Locate Alternative Sites

Slide 5 shows a map of the overall potential areas that were reviewed and screened as the new Pelham Elevated Storage Tank location. These potential areas for the new elevated storage tank were screened out based on:

- **Elevation** – Locations where the elevations were too low for the required height of the new elevated storage tank to achieve sufficient water pressures in the service area.
- **Land Use** – Locations that are forested or part of natural heritage systems, or areas which are already occupied such as existing residential zones,

recreational facilities, commercial uses, or areas with existing infrastructure which would interfere with a new elevated storage tank such as a communication tower.

- **Distance** – Locations too far from urban settlements and the existing regional water transmission main. The further the distance an elevated storage tank is from these items, the higher the overall costs would be due to the increase in infrastructure required to connect the elevated storage tank to the existing system.
- **Space Limitations** – Locations already densely populated with residential or commercial buildings, which have insufficient land space available for a new elevated storage tank.
- **Quarry** – Locations at or near the quarry where an elevated storage tank would potentially be impacted by quarry activities.
- **School** – Locations on school property where the construction and ongoing maintenance of the elevated storage tank would be disruptive to the operation of the school and/or reduce the yard size available for use by the school and students.

Note that while this map does show distinct colours for the different screening factors for simplicity, there are numerous areas that were screened out for more than one factor. For example, the quarry areas were screened out based on the potential impacts from the quarry on the elevated storage tank. However, some of the quarry areas shown also have space limitations that would prevent a new elevated storage tank from being built on them.

Another example is EL Crossley Secondary School which has a large yard on the property. While the map shows this area being screened out due to being disruptive to the operation of the school, the school is also at a further distance from the existing Regional water transmission main than other potential locations. This means if an elevated storage tank was put in this location, it would also be at a higher overall cost compared to other locations due to the additional infrastructure required to connect it to the existing Regional water transmission main.

This screening approach allowed the Project Team to develop a preliminary list of alternative elevated storage tank sites for further screening and evaluation.

Slide 6: Preliminary List & Short List of Alternative Sites

Based on the screening presented on the previous slide, Slide 6 shows nine (9) potential options for the location of a new elevated storage tank. These nine (9) options, which will be discussed in a minute, were further screened and a short list of three (3) alternative sites were carried forward to a detailed evaluation. Now we will walk you through the preliminary list of alternative sites:

- **Alternative 0 – Do Nothing** – This is the baseline scenario where the existing elevated storage tank would remain in place and a new elevated storage tank would not be constructed. Since this alternative does not satisfy the Problem and Opportunity Statement, this alternative was not carried forward to the short list. There is also insufficient space to construct the new elevated storage tank on this site while keeping the existing tank operational.
- **Alternative 1 – East of 275 Tice Road** – This area is currently active farmland. As this location is further away from the existing regional transmission main, the overall costs would be higher compared to other locations. Based on this, Alternative 1 was not carried forward to the short list.
- **Alternative 2 – West of 229 Tice Road** – While this area is further away from the regional transmission main than other alternatives, it has adequate space for a new elevated storage tank and associated infrastructure, such as an overflow pond for when the tank is drained for maintenance. It is also currently vacant. As such, Alternative 2 was carried forward to the short list for further evaluation.
- **Alternative 3 – South of Existing Golf Driving Range (220 Tice Road)** – This area has adequate space for a new elevated storage tank and associated infrastructure, is currently zoned as agricultural with an amendment to allow for the Golf Course. It is currently vacant, and the property owner is willing to sell the required land. As such, Alternative 3 was carried forward to the short list for further evaluation.
- **Alternative 4 – 1574 Lookout Street** – This area is currently active farmland with residential buildings fronting onto Lookout Street. As this location will require the regional water transmission main to go in through Tice Road, the overall costs would be higher compared to other locations. A longer paved access road to the ET would also be required adding to the costs and impacts to the farmland. Alternative 4 was not carried forward to the short list.
- **Alternative 5 – 1591 Effingham Street** – Similar to the previous alternative, this area is currently active farmland with residential buildings on the property. The location is further away from the existing regional transmission main resulting in overall higher costs compared to other locations. Alternative 5 was not carried forward to the short list.
- **Alternative 6 – 205 Highway 20 West** – This location is located on a partially wooded area which is a Provincially Significant Earth Science Area of Natural and Scientific Interest. The remaining area has insufficient space for a new elevated storage tank, is at a lower elevation compared to other locations, and is close to existing residential areas. Alternative 6 was not carried forward.
- **Alternative 7 – 202 Highway 20 West** – Compared to the other locations, this area is at a slightly lower elevation which results in increased tank costs. It is also located within a residential area with existing houses and condominiums surrounding the property on multiple sides and is currently zoned as residential.

However, this area has adequate space for a new elevated storage tank and associated infrastructure and is currently vacant. Based on this, Alternative 7 was carried forward to the short list for further evaluation.

- **Alternative 8 – 169 Canboro Road** – This area is currently zoned as residential, with residential buildings on and surrounding three sides of the property. Additionally, this location is at a lower elevation compared to other locations. Alternative 8 was not carried forward to the short list.
- **Alternative 9 – West of EL Crossley Secondary School (350 Highway 20 West)** – Finally, this location west of the school has adequate space. However, since it is in close proximity to the school there would potentially still be some disruption to the school itself during construction. This location is also a longer distance away from the Regional water transmission main and urban settlement areas, resulting in higher costs for connecting infrastructure. As such, Alternative 9 was not carried forward to the short list.

Overall, Alternatives 2, 3, and 7 were short listed for further evaluation.

Slide 7: Evaluation Criteria for Reviewing Short Listed Alternatives

The three (3) short listed alternatives were further evaluated based on the criteria shown on Slide 7, which includes:

- **Social** – this includes effects on neighbouring properties, Indigenous communities, impacts during and after construction such as noise, dust or traffic, effects on the municipality and local businesses, and effects on future growth as indicated in the Region’s Official Plan.
- **Economic** – this includes the life cycle costs of the new elevated storage tank and associated infrastructure. The life cycle cost considers the estimated capital cost, operation, and maintenance costs. This also considers the sustainability and affordability of the alternative.
- **Technical** - this includes the compatibility of the alternative with the existing systems, ease of implementation, effects on operations and maintenance, system complexity, system redundancy, and the ability to meet the existing and future water storage demands.
- **Archaeological** – this includes the effects on archaeological sites or structures, and on cultural sites or structures.
- **Environmental** – this includes effects on wildlife, vegetation, habitats, air quality, source water protection, and climate change.

Slide 8: Evaluation of Short Listed Alternative Sites

Slide 8 presents a summary of the evaluation of the three (3) short listed alternative sites. For each evaluation criteria (social, economic, technical, etc.), each alternative was given a rating from highest impact, which would be the most negative solution and

is shown as empty/white in the circle symbol scale at the left of the slide, to lowest impact, which would be the most positive solution, shown as the circle symbol coloured fully green.

We will now go through each category and shortlisted alternative at a very high level, for:

- **Social** – Alternative 3, South of the driving range, was rated to have the lowest negative impact, followed by Alternative 2, west of 229 Tice Rd, with a moderate impact, and Alternative 7, 202 Highway 20, with a high negative impact.

This is due to Alternative 3 being privately owned, where the severance of land is not anticipated to negatively impact the current property owner, the willingness of the landowner to sell the property, and moderate aesthetic impacts compared to the other alternatives. Alternative 7 has the highest aesthetic impact being located beside residential housing and condominium units, and Alternative 2 has the largest property where land severance may impact the property owner on their use of the land.

- **Economical** – Alternative 3, South of the driving range, was rated to have the lowest negative impact, followed by Alternative 2, west of 229 Tice Rd, with a moderate impact, and Alternative 7, 202 Highway 20, with a high impact (negative).

This is due to Alternative 3 having the lowest overall Capital Costs, based on lower overall elevated storage tank height needed as the ground elevation is higher, lower overall costs anticipated for land acquisition, and moderate costs for the watermain compared to the other two alternatives. All three alternatives would have similar operation and maintenance costs.

- **Technical** – All three alternatives were rated as a low impact (positive).

All three alternatives have similar anticipated approvals requirements, operation and maintenance effects, and improvements required to the water distribution system for pressure and fire flows. Alternative 2, west of 229 Tice Rd, and Alternative 3, South of the driving range, are closer to existing communications tower, where minor mitigation of signal interruption may be required.

A Geotechnical and/or Hydrogeological Investigations will need to be completed for the preferred alternative site once identified.

- **Archaeological** – Alternative 3, South of the driving range, and Alternative 7, 202 Highway 20, were rated to have a low negative impact, followed by Alternative 2, west of 229 Tice Rd, with a moderate impact.

This is due to the land on the locations of Alternative 3 and 7, having a lower potential for archaeological interest as these lands have previously been disturbed. In contrast, Alternative 2, west of 229 Tice Rd, has not been disturbed

previously. A Stage Two Archaeological Assessment will need to be completed for the preferred alternative site once identified.

- **Environmental** – Alternative 7, 202 Highway 20, was rated to have a low negative impact, followed by Alternative 3, South of the driving range, with a moderate impact, and Alternative 2, west of 229 Tice Rd, with a high impact (negative).

This is due to Alternative 2 being located on a Provincially Significant Area of Natural and Scientific Interest and in the Niagara Escarpment Plan Area, and Alternatives 2 and 3 both located in the Greenbelt Plan Area. Comparatively, Alternative 7 is in a residential area outside of these land designations. It should be noted that Alternatives 2 and 7 would require field investigations of vegetation/wildlife to confirm whether there are any Species at Risk, etc., while field investigations of Alternative 2 observed Barn Swallows on site, potentially requiring mitigation measures during design/construction.

Based on the ratings for each of the criterion for the three (3) alternatives, overall Alternative 3, South of the driving range, was determined to have the least impact to the property owner and lowest capital costs, while having similar or lessor aesthetic, technical, archaeological, and environmental impacts compared to Alternative 2, west of 229 Tice Rd, and Alternative 7, 202 Highway 20. As such, Alternative 3, South of the driving range, is recommended as the preferred location for the new Pelham Elevated Storage Tank.

With Alternative 3, South of the driving range, determined to be the preferred location for the elevated storage tank, the Project Team undertook additional studies to determine what system improvements would also be necessary. It should be noted that these system improvements would be similar for all three alternatives and were considered and evaluated under the Technical Criteria above. These system improvement options are discussed on the next few slides.

Slide 9: System Improvement Options – Scenario 0

Slide 9 shows Scenario 0 which is the baseline scenario in 2041 if no upgrades to the existing water system are completed.

As we mentioned earlier in this presentation, the Region's preferred pressure ranges are between 50 to 80 psi, and the MECP's acceptable pressure range is between 40 to 100 psi.

On each of the maps in the next few slides, uncoloured areas are within the Region's preferred pressure ranges, areas in orange and purple represent areas where the pressures are lower or higher than the Region's preferred pressure ranges but are still within the MECP's acceptable range. Areas in red and black are areas of very low or very high pressures outside of the MECP's acceptable range.

For this scenario, there is a large area in northwest Fonthill which experiences low or very low pressures (shown in orange and red areas), large areas in southern and eastern Fonthill which experience high pressures (shown in purple), and a small area in northeast Fenwick that experiences low pressure (shown in orange). In terms of Fire Flow, the available fire flow worsens compared to present day fire flows.

Overall Scenario 0 cannot meet the acceptable pressure range while accommodating growth to 2041 and will not be carried forward. The baseline pressures and fire flows will be used as a comparison point for System Improvement Scenarios 1, 2, and 3.

Slide 10: System Improvement Options – Scenario 1

Slide 10 shows System Improvement Scenario 1, which includes the addition of the new elevated storage tank at the Golf Driving Range, new pumps at the Shoalts Drive reservoir to pump water to the new elevated storage tank, and a new regional transmission main to connect the new elevated storage tank to the existing Regional water transmission main located by the existing elevated storage tank.

In terms of system pressures, overall, there are fewer areas which experience low or very low pressure (shown in orange and red areas), and more areas experience high pressure (shown in purple). Certain areas in central and northern Fonthill experience very high pressure (shown in black areas), and Fenwick is within the preferred pressure range.

In terms of Fire Flow, available fire flows improved compared to the baseline scenario. Further improvements could be achieved by upgrading small and dead-ended watermains in the local system.

Overall Scenario 1 cannot meet the MECP acceptable pressure range nor the Region's preferred pressure range while accommodating growth to 2041. Therefore, it will not be carried forward.

Slide 11: System Improvement Options – Scenario 2

Slide 11 shows System Improvement Scenario 2, which includes the addition of the new elevated storage tank at the Golf Driving Range, new pumps at the Shoalts Drive reservoir to pump water to the new elevated storage tank, a new larger Regional water transmission main to connect the new elevated storage tank to the existing Shoalts Drive Reservoir, with a direct connection to the local system, and a significant amount of new system infrastructure such as pressure control valve chambers which will help to adjust the areas of very high and very low pressure throughout the system (which add to the overall capital costs of the system).

In terms of system pressures, there are fewer areas which experience low pressure (shown in orange), high pressure (shown in purple) or very low pressures (shown in

red), and no areas of very high pressure. Fenwick is within the preferred pressure range.

In terms of Fire Flow, available fire flows improved compared to the baseline scenario. Further improvements could be achieved by upgrading small and dead-ended watermains in the local system.

Overall Scenario 2 has more areas within the preferred pressure range and improves fire flow. This will be carried forward for comparison with Scenario 3.

Slide 12: System Improvement Options – Scenario 3

Slide 12 shows System Improvement Scenario 3, which includes the addition of the new elevated storage tank at the Golf Driving Range, new pumps at the Shoalts Drive reservoir to pump water to the new elevated storage tank, a new larger dedicated Regional water transmission main to connect the new elevated storage tank to the existing Shoalts Drive Reservoir, a new separate local watermain connection from the elevated storage tank to the local system, and a minimal amount of new system infrastructure such as pressure control valve chambers which will help to adjust the areas of very high and very low pressure throughout the system.

In terms of system pressures, there are fewer areas which experience low pressures (shown in orange), high pressures (shown in purple) or very low pressures (shown in red), and no areas of very high pressure. Fenwick is within the preferred pressure range.

In terms of Fire Flow, available fire flows improved compared to the baseline scenario. Further improvements could be achieved by upgrading small and dead-ended watermains in the local system.

Overall, Scenario 3 has more areas in the preferred pressure range and improves fire flows compared to baseline. Scenario 3 also requires less new system infrastructure upgrades than Scenario 2, reducing lifecycle costs, as well as construction, operation, and maintenance impacts. Therefore, Scenario 3 is recommended.

Slide 13: Alternative System Improvements for Fire Flow – Scenario 3

Based on the previous comparisons of system improvement scenarios, Scenario 3, South of the driving range, is the recommended scenario, as such we have provided a figure that shows the fire flow improvements for this Scenario.

The areas noted with the light blue shading shows the areas that would have improved fire flows when the Scenario 3 system improvements are implemented, compared to the baseline scenario. This is mainly the northwest Fonthill area, and the tip of Highway 20 west, as well as a large portion of Fenwick.

Further improvements could be achieved by upgrading the small and dead-ended local watermains. This can be a phased approach, as the local areas undergo other improvements throughout the years.

Slide 14: Recommended Site & System Improvements

The Figure on the right side of Slide 14 shows the overall recommended solution for the new Pelham Elevated Storage Tank (Site Alternative #3, South of the driving range,) and System Improvements (Scenario #3). This includes:

- A new elevated storage tank being constructed on the property south of the Golf Driving Range at 220 Tice Road, with an easement from Lookout Street for the watermain and access road within the Golf Driving Range property. The new elevated storage tank would be approximately 44m tall above the ground level
- The site has space to construct additional infrastructure such as an overflow pond which is needed to drain the tank for maintenance, and an access road from Lookout Street to the elevated storage tank
- A new dedicated transmission main from the existing Shoalts Drive Reservoir, with new pumps, to fill the new elevated storage tank
- A new watermain from the new elevated storage tank connected to the existing local watermain, to provide treated water to the local water service area
- A new valve chamber at Highway 20 West and Haist Street for pressure control and to allow isolation of the new infrastructure as required for maintenance, emergencies, etc.
- And removal of the existing Pelham Elevated storage tank and Booster Pumping Station once the new infrastructure is operational

Additional studies will be undertaken to support the Class EA and detailed design. These include:

- A Stage 2 Archaeological Assessment to be completed as part of the Class EA process.
- A topography survey, and a geotechnical and/or hydrogeological study prior the detailed design being finalized.

Slide 15: Rendering of Recommended Location for New Elevated Storage Tank

Slide 15 shows three (3) renderings of the new elevated storage tank at the recommended location of the Golf Driving Range. View 1 is along Tice Road looking south towards the driving range and elevated storage tank, View 2 is on Marlene Stewart Drive looking west, and View 3 is on Lookout Street near Brewerton Boulevard looking north.

Slide 16: Next Steps & Comments

And now on to our final slide, following the PIC, the next steps for the Project Team will be to:

- Review and consider public input and comments received after the PIC and confirm the preferred location of the new Pelham Elevated Storage Tank
- Complete field work for the Stage Two Archaeological Investigation to confirm there is no archaeological significance at the preferred location
- Prepare the Class Environmental Assessment Project File Report summarizing the entire study results
- Issue a Notice of Study Completion and publish the Project File Report on the public record for a final public review period of 30 days
- Finally, review any further comments from the community during the 30-day review period and complete the Class Environmental Assessment process

Once the Class EA process has been completed, Niagara Region will begin the conceptual design of the elevated storage tank, complete the topographic survey of the site, and undertake geotechnical and/or hydrogeological investigations for the preferred location of the new Pelham Elevated storage tank. Detailed design and construction of the new elevated storage tank and associated system improvements will then follow.

In terms of the anticipated timeline, we are asking that any comments or questions about this PIC, material presented, etc. be submitted to the Project Team by **September 14, 2021**. We then anticipate that the Notice of Study Completion and Project File Report will be available for your review in late 2021.

If you have any questions or comments for the Project Team, please fill out a Comment Form which is available on Niagara Region's project website, or email or call the Project Team. A reminder that the project presentation, information, and comment forms can be found on Niagara Region's website for you to view.

Closing Statement

Thank you everyone for taking the time to view this presentation for PIC #2. We appreciate your involvement and feedback on this project and encourage you to reach out to the Project Team via email or phone or fill out a Comment Form if you have any other questions or comments.



Pelham Elevated Tank

Class Environmental Assessment

Frequently Asked Questions

What makes up the existing Pelham Water System?

The Town of Pelham (Fonthill and Fenwick) is part of the larger Welland water system. Water from the Welland Water Treatment Plant is pumped to the Shoalts Drive Reservoir. The Shoalts Drive Reservoir supplies water to the existing Pelham Elevated Tank for distribution of potable water to all consumers in the area.

What areas does the existing elevated Tank service?

The current tank services Fonthill and Fenwick.

Where is the existing Elevated Tank located?

The existing Pelham Elevated Tank is located behind the Pelham Fire Hall on Highway 20 and south of Kline Crescent.

What is the current condition of the existing the Pelham elevated tank?

The existing Pelham Elevated Tank was built in the 1980's – making it approximately 40 years old. The lifespan of an elevated tank depends on a variety of factors, but is typically 50 to 80 years for this type of tank. The Pelham Elevated Tank is nearing the end of its expected service life.

Why is a new elevated tank being considered at this time?

The existing Pelham Elevated Tank does not have sufficient storage capacity to meet the Ministry of Environment, Conservation and Parks (MECP) Design Guidelines for

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current and future storage requirements. The current storage shortfall of the Pelham Elevated Tank is being managed by increased pumping from the Shoalts Drive Reservoir. Using additional pumping to compensate for the required storage has higher operational costs and is not a viable option to meet long-term requirements.

As such, a new elevated tank is being proposed with a larger storage volume along with higher elevation to meet MECP guideline for storage required for equalization (day to day activities), fire storage, and emergency storage.

A new elevated tank also will be able to provide adequate water pressure to areas that currently do not meet MECP standard requirements. This will help with the northern Fonthill areas that are at a higher elevation.

What will happen if a new elevated tank is not built?

There will be increased shortage of water storage over the next twenty years as the current storage volume will be increasingly insufficient for the growing population.

Water supply operation costs would continue to increase because the existing tank will require more maintenance as it ages. The whole system will rely on pumping which is not operationally ideal and result in more energy usage.

Why is a new elevated tank being considered instead of upgrading the existing elevated tank or in-ground storage at Shoalts Drive?

The existing tank is approaching the end of its service life which increases the costs to keep it in good operational condition. The tank itself cannot be expanded because it is difficult to enlarge a welded steel elevated tank and the available space is limited at the current location.

The Shoalts Drive Reservoir, which does also provide storage to the system, does have space on site for a new reservoir cell. However, a new elevated tank is recommended because an elevated tank addresses the lack of adequate pressures in some parts of the system. If we added a new reservoir cell, we would still need to upgrade the pumps at Shoalts Drive pumping station, and in the long term this option would be more costly than a new elevated tank.

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What was considered in the selection of a location for a new Elevated Tank?

Locations within the Pelham Service Area were reviewed and an initial screening was conducted to identify a preliminary list of alternatives sites. This list also included sites that were proposed through feedback from the first Public Information Centre. This included screening out areas which were too low in elevation, too far away from the existing urban area and existing Regional transmission main, properties that were too small or with existing land uses/restrictions, would be impacted by quarry activities, and properties that would be disruptive to schools. This process resulted in nine (9) preliminary sites which were further screened to meet the Problem and Opportunity Statement, availability, size, and costs. Following this second evaluation, three (3) sites were short-listed for the detailed evaluation process and the lowest-impact alternative was selected.

You can find the details of the criteria and evaluation in the PIC presentation.

How large and tall will the new elevated tank be?

The current elevated tank is 2.3 Million Litres and the new elevated tank will be 6 Million Litres to address current water storage volume shortage and accommodate growth. The new elevated tank will be 44m above ground, compared to the existing elevated tank at 29.5m above ground. A taller elevated tank is required to have sufficient pressure for the northern developed areas that are at a higher elevation.

What will the new elevated tank look like?

Given that the new elevated tank will be 44m above the ground level, it will be taller than the existing houses and trees in the surrounding area. The actual top of the tank will be the most visible part and will be painted the same as the Region's other elevated tanks (i.e., white with the Niagara Region logo). The bottom of the tank (pedestal) will be concrete and look similar to the existing tank.

How will the new elevated tank's appearance be maintained?

The coating technology of the elevated tanks have improved significantly over the years. Most coatings now have UV resistance and are more durable than in the past. Routine maintenance of the tank will also help maintain the appearance.